PLCS Reporter

for IBM Tivoli Storage Manager

User's Guide

Last revised: April, 2014

This guide contains information that is needed to install, configure, maintain, and use the Reporter product, Version 2.8

P. L. C. S.

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Reporter

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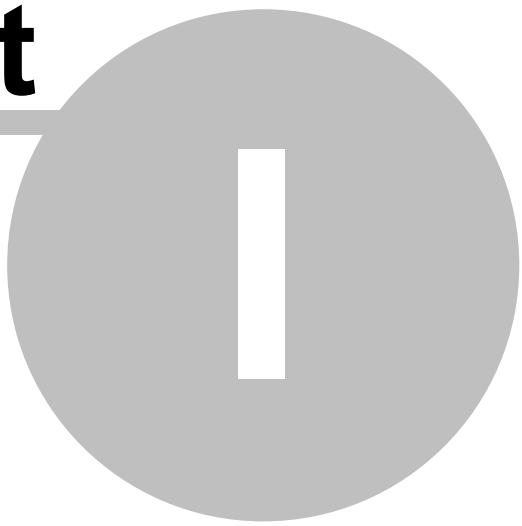

1 Welcome

Thank you for choosing PLCS Reporter

The powerful reporting tool for enterprise storage administrators

Real-time accurate reporting, alerting and trending for IBM Tivoli Storage Manager servers

Make sure your Tivoli Storage Manager server is running smoothly!

In this User's Guide ...

Getting started

Product Overview
System Requirements
Supported O.S.
Supported Database
Automated installation

PLCS Reporter

Generate a Report
Activity in a Timeline
Create Collocation Groups
Client Node Drill Down Information
Node Performance Info
Activity Log Browser
Charge Back
TSM Command Line
Enterprise Reporting
Browsing the Database

Application Components

Reporter
Configuration Manager
Reporter Scheduler
Reporter Agent

More Help

Troubleshooting
How to License?
EULA Agreement

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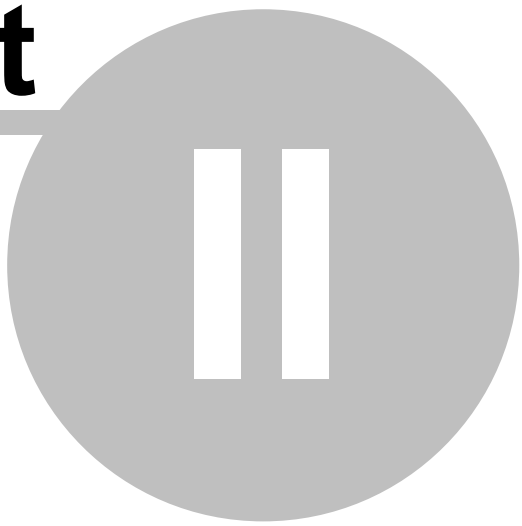
Part



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PLCS will provide best endeavors to support for PLCS Reporter with the current and future releases of Tivoli Storage Manager.

If you have any suggestions or questions, do not hesitate and send us an email: info@plcs.eu
The software updates, documentation enhancements and obtain further information can be downloaded at: www.plcs.eu

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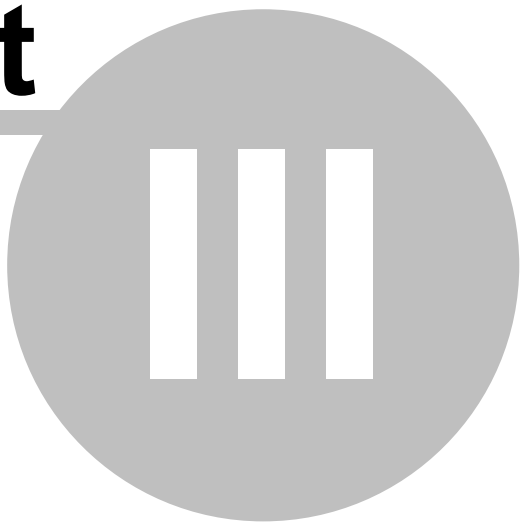

3 Introduction

Welcome to the PLCS Reporter manual.
This manual contains information that you need to install, configure, maintain, and use the PLCS Reporter product.

This chapter discusses the following topics:

- Product Overview
- System Requirements
- Software Requirements
- Supported Database

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3.1 Product Overview

PLCS Reporter is a reporting and monitoring tool for IBM Tivoli Storage Manager. PLCS Reporter for IBM Tivoli Storage Manager (TSM) keeps an eye on your TSM environment when you can't. Reporter provides live data gathering, and one button analysis, reporting and trending of your critical backup servers and clients.

PLCS Reporter's data collection process runs continuously to capture data from your TSM servers and store it in its own database. Reporter uses that data to provide reports and alerts of your server environment and to generate reports for problem analysis, trending, hardware utilization statistics, and configuration inconsistencies. Since Reporter uses its own database to analyze data and generate reports, your TSM servers are not impacted by long running queries or select statements. The historical views provided by PLCS Reporter of your TSM environment and operations are a great troubleshooting and problem determination tool for hard to diagnose problems like intermittent client or process failures and network bandwidth issues.

With PLCS Reporter, you spend less time monitoring and managing your IBM Tivoli Storage Manager servers.

PLCS Reporter is ideal for:

- TSM performance validation
- Growth prediction
- Historic data review
- Conformity checks
- Auditing of policies
- Reporting on almost anything and more
- Enterprise reporting
- Charge back
- Software installed asset tracking

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3.2 System Requirements

What do you need to get the most out of PLCS Reporter? Take the following list of requirements as a starting point. Like physical computers, virtual machines running under e.g. VMWare generally perform better if they have faster processors and more memory.

The exact configuration you need to support your environment with satisfactory response time will vary depending on the size of the objects and other factors. Individual display response times vary depending on workstation speed, memory, size of objects, and network and server workload.

The following minimum configurations need to be evaluated and adjusted according to your unique requirements. Disk space recommendations described here are for product installation and working space only. The actual hard disk required varies, depending on your installation.

Hardware for running Windows operating systems:

- Minimum CPU 2 GHz Pentium processor or equivalent, or higher
- A minimum of 1 GB RAM, advised is 2GB of RAM (dependent on the server config a different license might be necessary for MS SQL)
- 800 MB disk space for installation (including MS SQL Server Express and . NET 3.5 SP1)
- Run-time disk space depends on amount of data collected from the TSM server into the database(s).
  Requirements might vary between 1 GB to 4 GB per TSM server per year.
- Any Ethernet adapter supported by the host operating system
- 16-bit or 32-bit display adapter recommended with minimum resolution 1024*860

Recommended hardware for a PLCS Reporter server with:

- 15 TSM databases are 2 processor cores and 2 GB RAM (dependent on the server config a different license might be necessary for MS SQL)
- 30 TSM databases are 4 processor cores and 4 GB RAM (dependent on the server config a different license might be necessary for MS SQL)

Also see How to License?

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3.3 Software Requirements

PLCS Reporter is available for the following Windows platforms.
One of the following Operating Systems is required:

- Windows 7
- Windows 2008 or Windows 2008 R2
- Windows 2012 or Windows 2012 R2

The following software needs to be installed on the system prior to installing PLCS Reporter for IBM Tivoli Storage Manager.

- NET Framework v3.5 SP1 or higher
  On Windows servers the .NET 3.5 package must be installed through ROLES on the server
  http://www.microsoft.com/downloads/dotnet_framework_3_5_SP1
- SQL Server Express (delivered with PLCS Reporter
  Or download the free version of Microsoft SQL server (64-bit):
  http://www.microsoft.com/express/sql/download/
  To manage MS SQL please download management studio from web page:
  http://www.microsoft.com/express/Database/InstallOptions.aspx

The PLCS Reporter installation includes a Microsoft SQL Server Express package.
The user will be prompted to install the database server.

Please use the automated installation package.

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3.4 Supported Database

PLCS Reporter is a data server client. This is an application that allows you to run commands and SQL statements against a database server, connect to a remote or local database server and access its databases.

The following database engine is supported:

- Microsoft SQL Server 2012 R2 Express
  Not included in the package, other releases of MS SQL Server are supported (for example SQL Server Enterprise, does require a separate license of MS SQL Server).

All database engines have different levels, please review the database type and their edition limitation.

Utilizing a existing SQL Server which is already present in your organization, is supported, adviced is to install Reporter modules on a separate system and connect to your central SQL Server, please use a separate user id (e.g. Reporter) and password for the SQL Server which needs dbcreator rights to create the database. Refer to Database (manual installation) for more information.

3.4.1 Microsoft SQL Database

PLCS Reporter supports all Microsoft SQL Server versions of 2008 and 2012 on Windows. Microsoft SQL server is a relational database management system that delivers data to its SQL data server clients. You need to install a Microsoft SQL Server if you plan to use a database that resides on this computer. For more information about MS SQL servers, go to:

http://msdn.microsoft.com/en-us/library/dd692930(v=sql.10).aspx

What are the restrictions for SQL Server Express?

- SQL Server 2012 R2 Express (no charge, non-warranted):
  Limited to lesser of 1 Socket or 4 cores
  No more than 1 GB of memory per instance
  Maximum relational Database size 10 GB

Use Microsoft SQL 2012 R2 Express when possible.

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SQL Server 2012 is available in many editions to help meet the needs of your organization please check out:

http://msdn.microsoft.com/en-us/library/cc645993.aspx

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Part

4 Installing

Before beginning the installation, verify that your system meets all Hardware, Operating System, and Software requirements.

This chapter discusses the following topics:

- Installation Package
- Configure the Installation
- How to Request a License?
- Add your License File
- Manual installation and configuration

Please review the release notes first!
For release notes please refer to Release Notes.txt file.

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4.1 Important Notes

Disclaimer for CPU core detection with Windows XP(SP2) or Windows Server 2003 (SP2)

Hot fix KB932370 is required. The number of physical hyper threading-enabled processors or the number of physical multi core processors is incorrectly reported in Windows Server 2003 There is a 32 and a 64bits fix available.

Windows versions NumberOfLogicalProcessors and NumberOfCores property can not be used.

NumberOfLogicalProcessors and NumberOfCores property can not use in Windows XP Service Pack 2 and earlier.
In Windows XP Service Pack 3, NumberOfLogicalProcessors and NumberOfCores property is available.

In Windows Server 2003 Service Pack 2 and earlier, NumberOfLogicalProcessors and NumberOfCores property
is not available.
But applied KB932370 hotfix, NumberOfLogicalProcessors and NumberOfCores property is available.
See: The number of physical hyperthreading-enabled processors or the number of physical multicore processors is
incorrectly reported in Windows Server 2003

http://support.microsoft.com/kb/932370/

In Windows Vista, Windows 7 and Windows 2008, NumberOfLogicalProcessors and NumberOfCores property are available.

Important note for Windows XP SP3:

SHAxxxCryptoServiceProvider error on Windows XP SP3

The MSDN documentation is right in the sense that it should be supported in XP SP3 by design, and if it is not, it's only because of a bug in .NET 3.5. The constructors of SHAxxxCryptoServiceProvider classes does not check the (Prototype) name, and this is why it fails in Windows XP.

A simple workaround on a given PC:
Start regedit program and browse to registry key:
HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Cryptography\Defaults\Provider

Find its subkey named "Microsoft Enhanced RSA and AES Cryptographic Provider (Prototype)", export it to a .reg file, edit
the .reg file with e.g. notepad and remove " (Prototype)" from its name.

Then import it back into the registry, the original key will be duplicated to the new key without the (Prototype) text, with the same contents.

SHA256CryptoServiceProvider should now work on Windows XP SP3 machines.

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Important note for Windows 2003 and WMI:

Error when running ClientAgent.exe /WMI in Win32_Product

Error message when you query the "Win32_Product" class after you install applications by using Microsoft Windows Installer (MSI) 4.5 together with the "Per-User" option in Windows Server 2003 and in Windows XP: "0x80041001 - Generic failure"

Considering the following scenario:
You install Microsoft Windows Installer (MSI) 4.5 on a computer that is running Windows Server 2003 Service Pack 2 (SP2) or that is running a 64-bit version of Windows XP Professional Service Pack 2 (SP2).

You install multiple applications by using MSI together with the Per-User option. For example, you run the following command to install a MSI package named application.msi: MSIexec.exe /i application.msi ALLUSERS=""

In this scenario, when you run a Windows Management Instrumentation (WMI) query against the Win32_Product class to obtain a list of installed applications, you receive an error message that resembles the following:

Error Number: 0x80041001
Facility: WMI
Description: Generic failure

After the error, the list of installed applications is not obtained.

Note This problem does not occur in Microsoft Windows Installer 3.1.

How to verify if .NET Framework 3.5 SP1 is installed (Windows Server 2008 R2)

Here are the steps to verify that .NET Framework 3.5.1 is installed on Windows Server 2008 R2

1. Click the Start button in the lower left hand corner of the display.
2. Highlight Administrative Tools and select Server Manager.
3. In the Server Manager interface, click Features to display all the installed Features in the right hand pane. Verify that .NET Framework 3.5.1 is listed.

If .NET Framework 3.5.1 feature is not listed, you can use either of the following methods to install it:

Using Server Manager Interface

1. In the Server Manager interface, select Add Features to displays a list of possible features.
2. In the Select Features interface, expand .NET Framework 3.5.1 Features.
3. Once you expand .NET Framework 3.5.1 Features, you will see two check boxes. One for .NET Framework 3.5.1 and other for WCF Activation. Check the box next to .NET Framework 3.5.1 and click Next.

Note: If you do not expand .NET Framework 3.5.1 Features and check it, you will get a pop-up titled Add Features Wizard as shown below.
Click Cancel and expand .NET Framework 3.5.1 Features and then check .NET Framework 3.5.1 check box below it.

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Add Features Wizard
Add role services and features required for .NET Framework 3.5.1 Features?
You cannot install .NET Framework 3.5.1 Features unless the required role services and features are also installed.
Role Services:
Web Server (IIS)
Web Server
Application Development
Security
Windows Process Activation Service
Process Model
.NET Environment
Configuration APIs
Description:
Web Server (IIS) provides a reliable, manageable, and scalable Web application infrastructure.
Add Required Role Services
Cancel
Why are these role services and features required?

You cannot install .NET Framework 3.5.1 Features unless the required role services and features are also installed.

1. In the Confirm Installation Selections interface, review the selections and then click Install.
2. Allow the installation process to complete and then click Close.

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4.2 Automatic Installation

Start the Install_Reporter.cmd script (referral to the Details of Script)

Before you start, please have your machine fully patched with all Microsoft Updates.

The automated installation performs the following tasks:

- Installs Microsoft .NET framework 3.5 SP1 or higher
- Installs Microsoft installer version 4.5 or higher
- Installs Microsoft patches needed for packages of .NET
- Installs Microsoft Powershell

If the packages are already installed they are skipped during installation, otherwise the installer performs an installation of the needed items.

After the installation of these items a reboot is required!

Once the reboot is done, run the setup.cmd again and the remaining checks are done, then if all packages are installed correctly the installation of Microsoft SQL takes place. This is also done automatically including all the configuration steps.

Once Microsoft SQL is installed, the setup script runs the setup of Reporter. When Reporter is on the last stage it will popup the Reporter Configuration Manager and asks you to confirm correct communications with the MS SQL database. Then add a TSM server connection as described in Add TSM Server.

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4.2.1 Downloading the Package

On the following URL: http://upload.plcs.nl/download/
All the packages are available for download.

MSSQL Install
http://www.microsoft.com/en-us/download/details.aspx?id=29062

Reporter Manual
PLCS_Reporter_x.x.pdf

Reporter Executable
Reporter_Setup_x.x.x.x.zip
Reporter_Setup_x.x.x.x.exe

FILE NAME	Description
ENU\x64 \SQLEXPRWT_x64_ENU.exe	MS SQL (Express) Installation package
Reporter_Setup_version.exe	Setup of Reporter or
Reporter_Setup_version.zip	Setup of Reporter in zip format
Reporter_version.pfg	Reporter Manual in PDF

Please download all the packages and unpack them.

Note: The path may not contain any SPACES.

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4.2.1.1 File Location

Directory structure of the automatic installation package.
Sizes and date stamps may differ with other versions.

Files and directories

```
12-10-2009  21:46       509.692.047 Reporter_Install.zip [FULL PACKAGE]

Expands into:

14-10-2009  11:11    <DIR>          Reporter_Install

Directory of C:\Install\Reporter_Install [no spaces in the directory name!]

14/10/2009  10:53    <DIR>          .
14/10/2009  10:53    <DIR>          ..
09/10/2009  15:02    <DIR>          MSSQL_2008
09/10/2009  15:02    <DIR>          Pre-Requisites
12/10/2009  16:26        14.182.473 Reporter_Setup_2.3.0.4.exe
12/10/2009  17:55               462 setup.cmd
               7 File(s)    523.874.096 bytes

 Directory of C:\Install\Reporter_Install\MSSQL_2008

09/10/2009  15:02    <DIR>          .
09/10/2009  15:02    <DIR>          ..
12/10/2009  18:30             1.788 mssql2008.vbs
12/10/2009  16:00             4.753 sql-2008-express.ini
09/10/2009  15:01       229.169.680 SQLEXPRWT_x86_ENU.exe
               3 File(s)    229.176.221 bytes

 Directory of C:\Install\Reporter_Install\Pre-Requisites

09/10/2009  15:02    <DIR>          .
09/10/2009  15:02    <DIR>          ..
09/10/2009  15:03    <DIR>          net35sp1
09/10/2009  15:01    <DIR>          pwrshell
09/10/2009  15:20               828 server_test.vbs
09/10/2009  15:02    <DIR>          wininst45
               1 File(s)          828 bytes

 Directory of C:\Install\Reporter_Install\Pre-Requisites\net35sp1

09/10/2009  15:03    <DIR>          .
09/10/2009  15:03    <DIR>          ..
08/10/2009  08:47       242.743.296 dotnetfx35.exe
08/10/2009  15:37             1.855 net35sp1.vbs
               2 File(s)    242.745.151 bytes

 Directory of C:\Install\Reporter_Install\Pre-Requisites\pwrshell

09/10/2009  15:01    <DIR>          .
09/10/2009  15:01    <DIR>          ..
```


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```
12/10/2009  17:52             3.193 pwrshell.vbs
09/10/2009  15:41         5.422.373 Windows6.0-KB928439-x64.msu
09/10/2009  15:38         5.279.681 Windows6.0-KB928439-x86.msu
08/10/2009  15:54         1.691.696 WindowsServer2003-KB926139-v2-x86-ENU.exe
09/10/2009  15:41         2.297.392 WindowsServer2003.WindowsXP-KB926139-v2-x64-
ENU.exe
               5 File(s)     14.694.335 bytes

 Directory of C:\Install\Reporter_Install\Pre-Requisites\wininst45

09/10/2009  15:02    <DIR>          .
09/10/2009  15:02    <DIR>          ..
07/10/2009  16:39         1.768.236 Windows6.0-KB942288-v2-x86.msu
08/10/2009  12:32         4.691.480 WindowsServer2003-KB942288-v4-x64.exe
07/10/2009  16:39         3.071.512 WindowsServer2003-KB942288-v4-x86.exe
12/10/2009  17:57             2.786 wininst45.vbs
               4 File(s)      9.534.014 bytes
```

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4.2.2 Details of Script

For an automated installation of PLCS Reporter, start the Install_Reporter.cmd script.

Install_Reporter.cmd in detail:

```
@echo off
cls

REM Check for sufficient rights
whoami /groups | findstr /b BUILTIN\Administrators | findstr /c:"Enabled group" &&
goto :isadministrator

echo.
echo Not sufficient administrative rights.
echo.
echo Start the install with "Run as Administrator".
echo.
pause
goto :End

:isadministrator

REM Check OS for Windows 2008 R2
setlocal
if %PROCESSOR_ARCHITECTURE%==x86   set pro_arch=32 Bit (x86)
if %PROCESSOR_ARCHITECTURE%==AMD64 set pro_arch=64 Bit (AMD64)
if %PROCESSOR_ARCHITECTURE%==IA64 set pro_arch=Itanium 64 Bit (IA64)

:Main
    call :clean
    for /f "tokens=2 delims=[]" %%x in ('ver') do set cmdver=%%x
    set cmdver=%cmdver:Version =%
    call :parse_cmdver
    call :ver%cmdver%
    call :Report
    goto :End

:clean
    :: Ensure we don't inherit values from previous runs
    set _verCmd=
    set _verMajor=
    set _verMinor=
    set _verBuild=
    set _verWin=
    goto :eof

:Parse_cmdver
    :: Turn "5.1.2306" string into actionable variables
    for /f "tokens=1,2,3* delims=." %%g in ("%cmdver%") do (
        set major=%%g
        set minor=%%h
        set build=%%i
        )
    goto :eof

:Report
    goto :eof

:Report2
```


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```
    set _ver
    goto :eof

:ver6.1.7600
:ver6.1.7601
    set longver=Windows 7 or Windows Server 2008 R2
    set shortver=Win7/Server2008R2

if "%shortver%" NEQ "Win7/Server2008R2" goto :End

REM Set Powershell for RemoteSigned
c:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe Set-ExecutionPolicy
RemoteSigned

REM Open firewall port 1433
set tempfile=%~dp0temp.ps1
echo $port = New-Object -ComObject HNetCfg.FWOpenPort > temp.ps1
echo $port.Port = 1433 >> temp.ps1
echo $port.Name = 'MSSQL - Port 1433' >> temp.ps1
echo $port.Enabled = $true >> temp.ps1
echo $fwMgr = New-Object -ComObject HNetCfg.FwMgr >> temp.ps1
echo $profile = $fwMgr.LocalPolicy.CurrentProfile >> temp.ps1
echo $profile.GloballyOpenPorts.Add($port) >> temp.ps1
c:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe %tempfile%

REM Add .NET framework 3.5
echo Import-Module ServerManager > temp.ps1
echo Add-WindowsFeature as-net-framework >> temp.ps1
@echo on
c:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe %tempfile%
@echo off
del %tempfile%

REM Install MSSQL
SQLEXPRWT_x64_ENU.exe /Configurationfile="%~dp0\ConfigurationFile.ini" /
IAcceptSQLServerLicenseTerms /QS

REM Install Reporter
pause

:End
```

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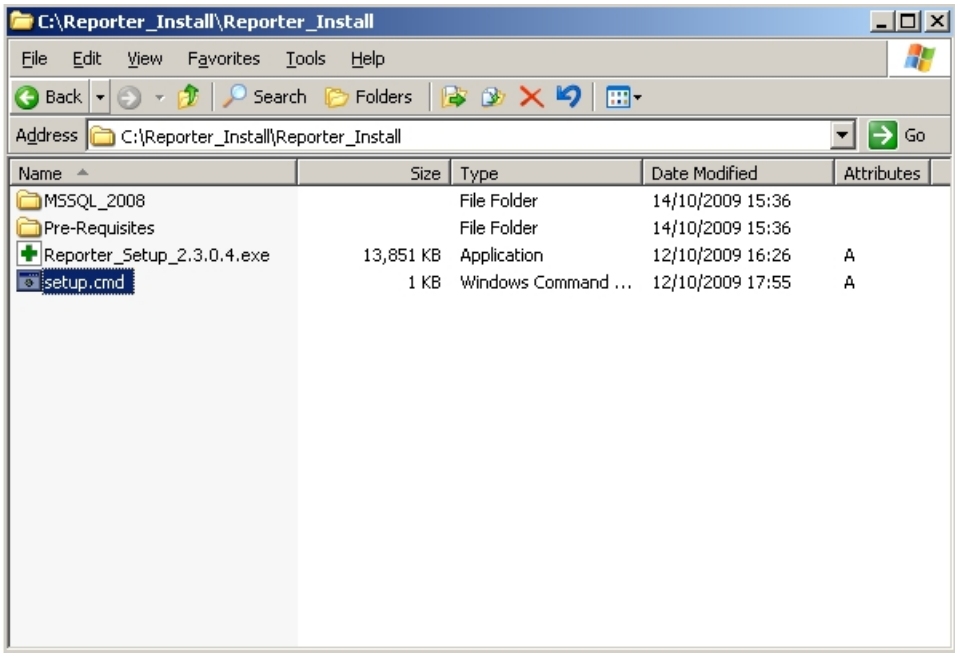
4.2.3 Installation Steps

Once you have downloaded all packages in a directory structure (referal for more information)

To install PLCS Reporter on a Windows system, you need Administrative rights.

Unpack the files from the zip file.


C:\Reporter_Install\Reporter_Install
File Edit View Favorites Tools Help
Back Search Folders
Address C:\Reporter_Install\Reporter_Install
Go
Name Size Type Date Modified Attributes
MSSQL_2008 File Folder 14/10/2009 15:36
Pre-Requisites File Folder 14/10/2009 15:36
Reporter_Setup_2.3.0.4.exe 13,851 KB Application 12/10/2009 16:26 A
setup.cmd 1 KB Windows Command ... 12/10/2009 17:55 A

Run the setup.cmd file.

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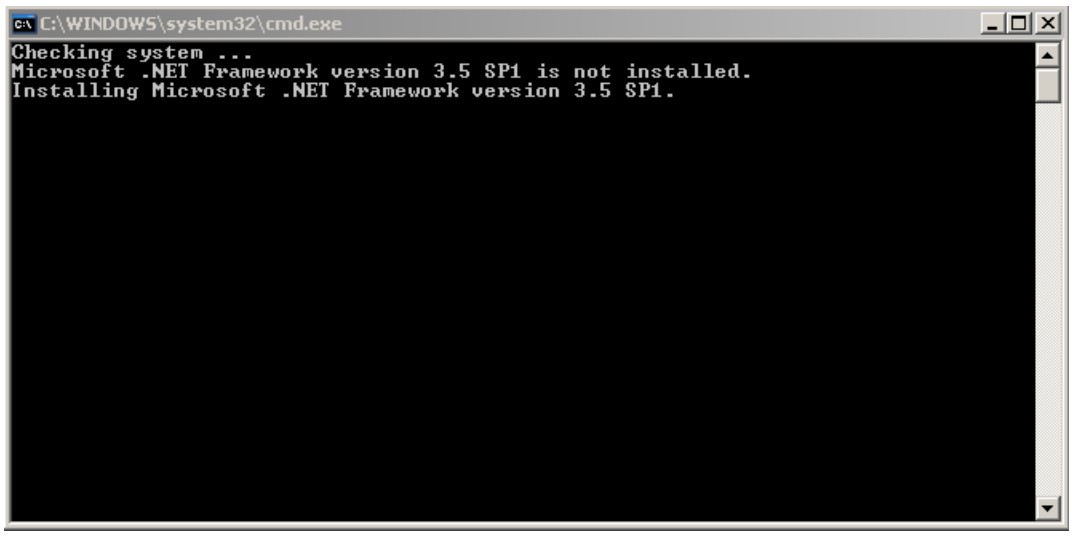
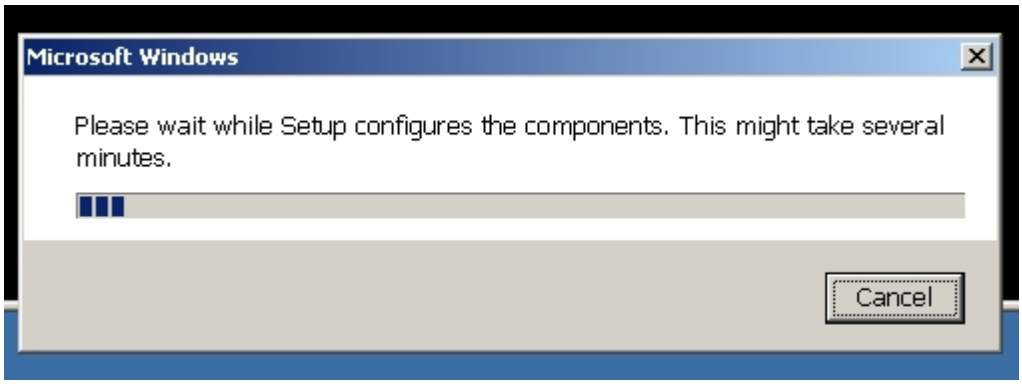
In case the system is completely patched the following output will be displayed:

Checking system ...

Install_Reporter.cmd is executed and it shows:


C:\WINDOWS\system32\cmd.exe
Checking system ...
Microsoft .NET Framework version 3.5 SP1 is not installed.
Installing Microsoft .NET Framework version 3.5 SP1.

continue...



The installer unpacks the files and installs .NET framework. This might take a while (up to 30 minutes)!

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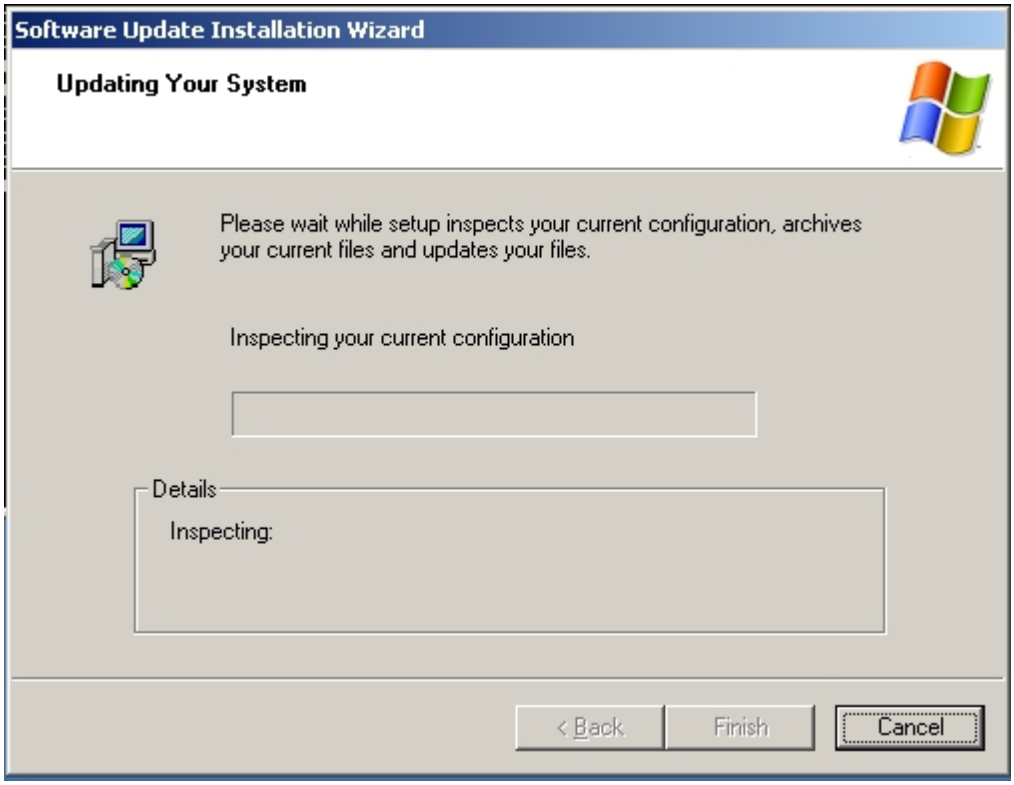
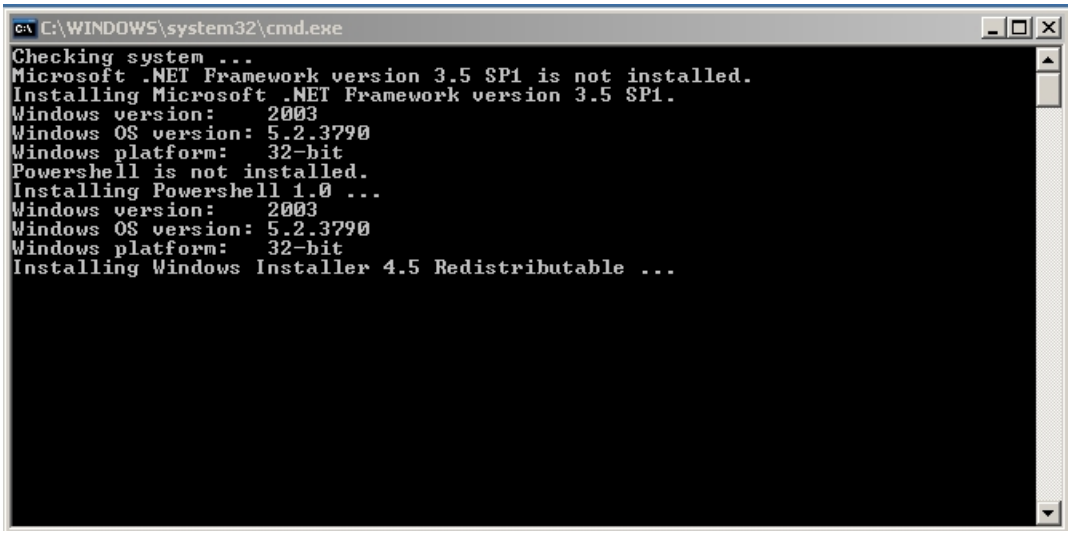
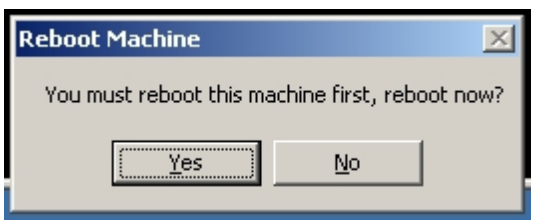


Windows installer is installed when it is not present on the system.


C:\WINDOWS\system32\cmd.exe
Checking system ...
Microsoft .NET Framework version 3.5 SP1 is not installed.
Installing Microsoft .NET Framework version 3.5 SP1.
Windows version: 2003
Windows OS version: 5.2.3790
Windows platform: 32-bit
Powershell is not installed.
Installing Powershell 1.0 ...
Windows version: 2003
Windows OS version: 5.2.3790
Windows platform: 32-bit
Installing Windows Installer 4.5 Redistributable ...

After all prerequisites are installed, the installer asks to reboot the system.
To perform the reboot, click Yes.



After the reboot manually restart setup.cmd to continue installation.

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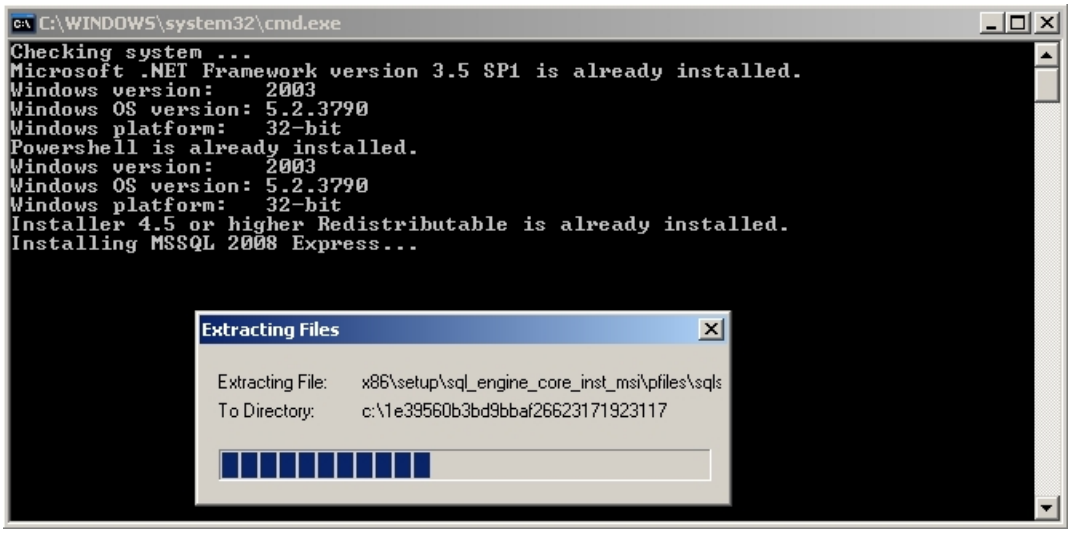
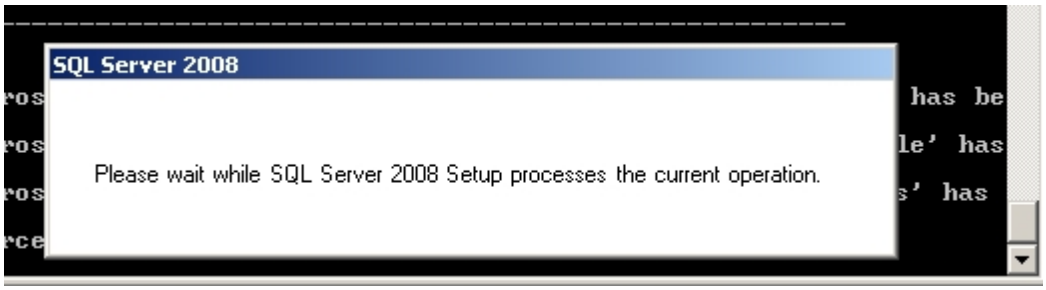
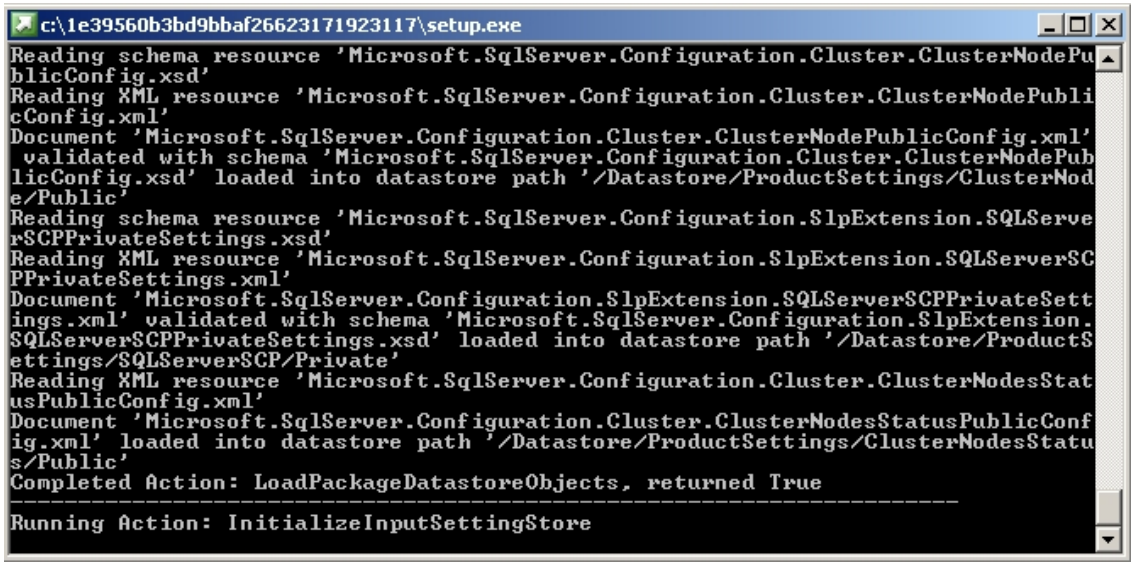
When setup is executed it verifies and shows the packages that have been installed earlier.



After that the MS SQL installer will unpack and start installing.



The SQL installer package will open a console screen. DO NOT CLOSE THIS WINDOW!


c:\1e39560b3bd9bbaf26623171923117\setup.exe
Reading schema resource 'Microsoft.SqlServer.Configuration.Cluster.ClusterNodePublicConfig.xsd'
Reading XML resource 'Microsoft.SqlServer.Configuration.Cluster.ClusterNodePublicConfig.xml'
Document 'Microsoft.SqlServer.Configuration.Cluster.ClusterNodePublicConfig.xml' validated with schema 'Microsoft.SqlServer.Configuration.Cluster.ClusterNodePublicConfig.xsd' loaded into datastore path '/Datastore/ProductSettings/ClusterNode/Public'
Reading schema resource 'Microsoft.SqlServer.Configuration.SlpExtension.SQLServerSCPPrivateSettings.xsd'
Reading XML resource 'Microsoft.SqlServer.Configuration.SlpExtension.SQLServerSCPPrivateSettings.xml'
Document 'Microsoft.SqlServer.Configuration.SlpExtension.SQLServerSCPPrivateSettings.xml' validated with schema 'Microsoft.SqlServer.Configuration.SlpExtension.SQLServerSCPPrivateSettings.xsd' loaded into datastore path '/Datastore/ProductSettings/SQLServerSCP/Private'
Reading XML resource 'Microsoft.SqlServer.Configuration.Cluster.ClusterNodesStatusPublicConfig.xml'
Document 'Microsoft.SqlServer.Configuration.Cluster.ClusterNodesStatusPublicConfig.xml' loaded into datastore path '/Datastore/ProductSettings/ClusterNodesStatus/Public'
Completed Action: LoadPackageDatastoreObjects, returned True
Running Action: InitializeInputSettingStore

In the console you see what actions are taking place in the installation process. The GUI of MS SQL will popup and it shows the graphical installation fase.

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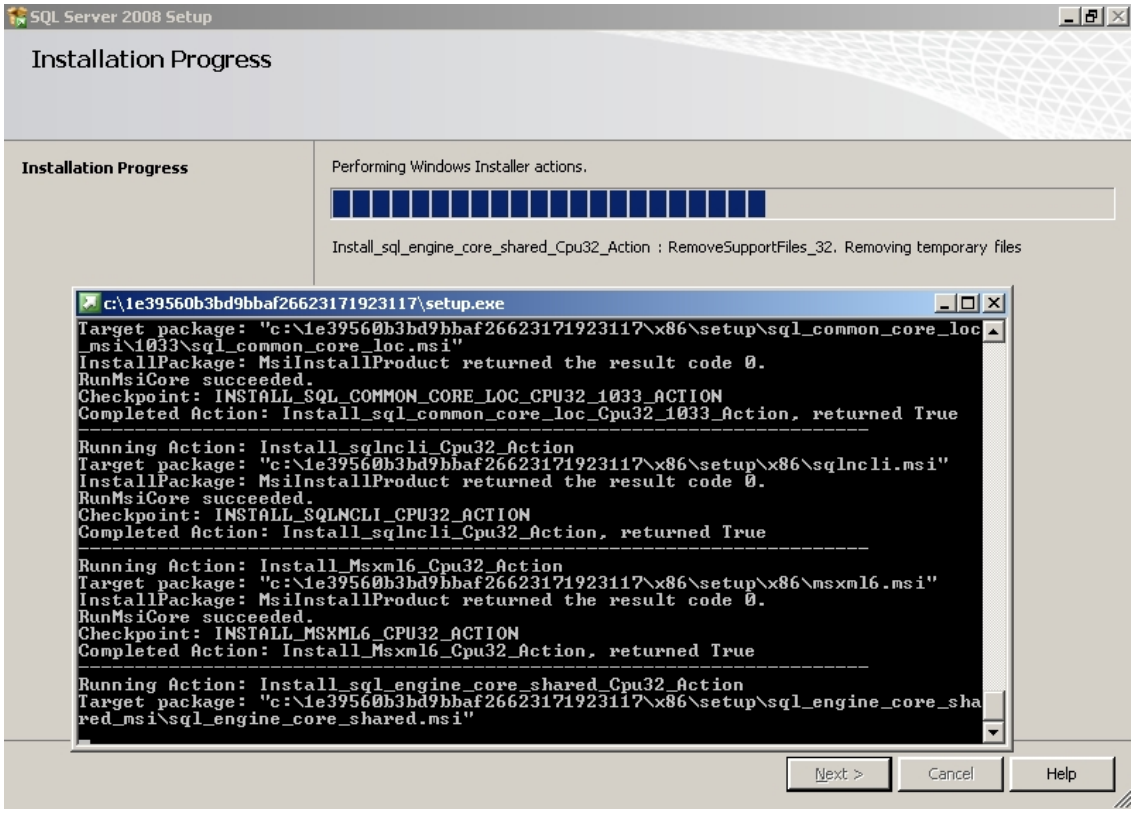
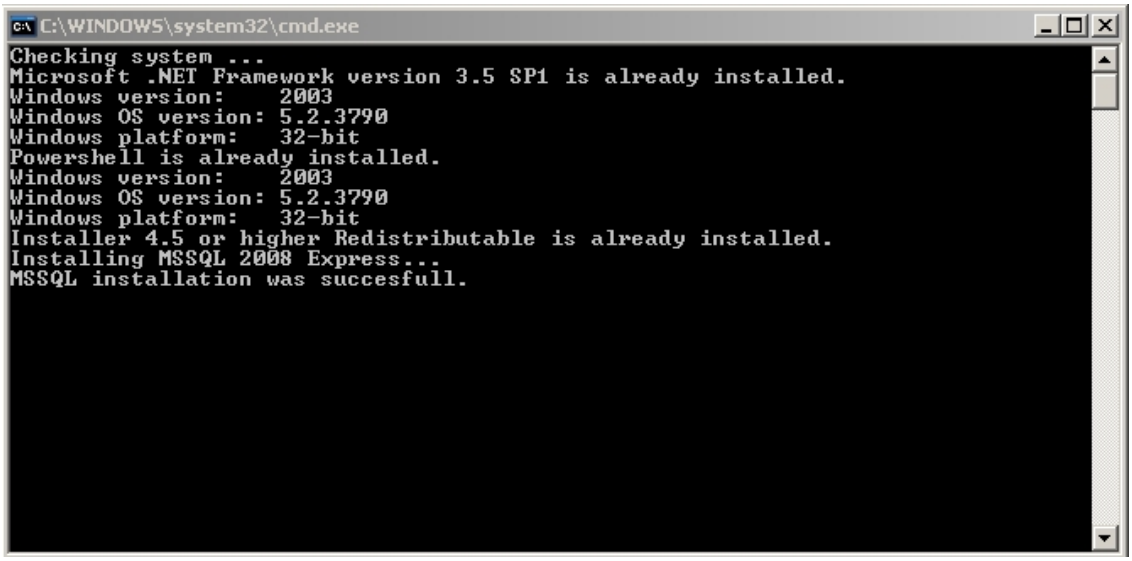


Once the installer is done the windows will be closed by itself.


C:\WINDOWS\system32\cmd.exe
Checking system ...
Microsoft .NET Framework version 3.5 SP1 is already installed.
Windows version: 2003
Windows OS version: 5.2.3790
Windows platform: 32-bit
Powershell is already installed.
Windows version: 2003
Windows OS version: 5.2.3790
Windows platform: 32-bit
Installer 4.5 or higher Redistributable is already installed.
Installing MSSQL 2008 Express...
MSSQL installation was succesfull.

After a successful installation you see the message that MS SQL installation was successful.

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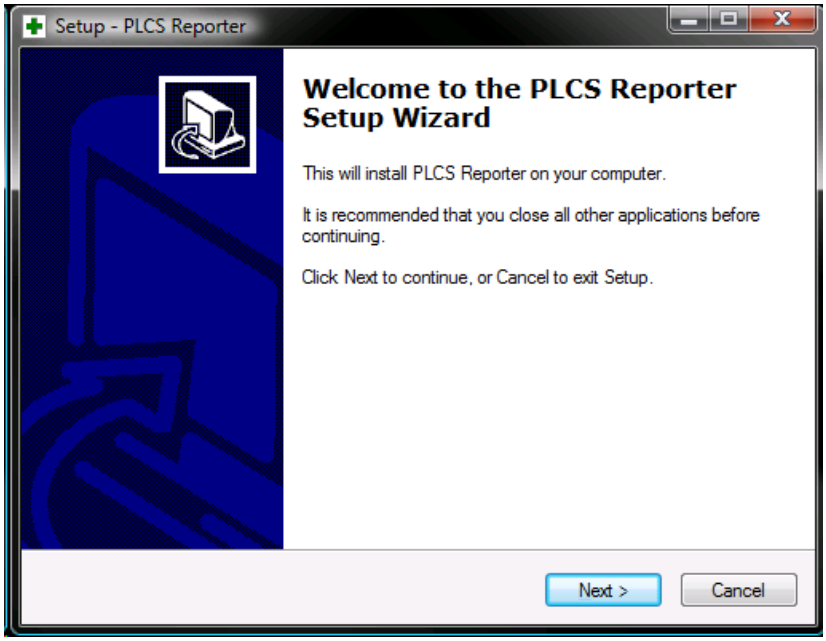
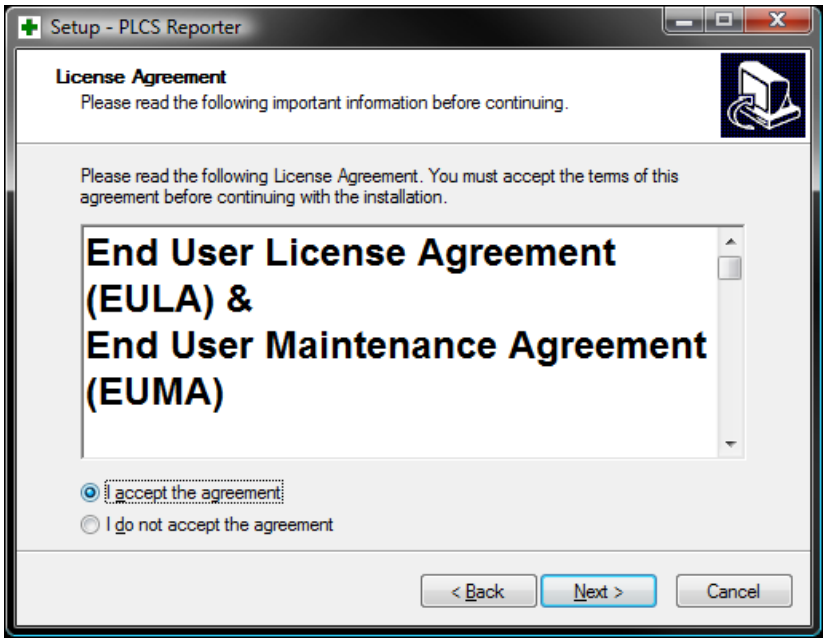

Setup - PLCS Reporter
Welcome to the PLCS Reporter Setup Wizard
This will install PLCS Reporter on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

As the next step the PLCS Reporter setup is started. Press next to get the following step in the installation process.


Setup - PLCS Reporter
License Agreement
Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
End User License Agreement (EULA) &
End User Maintenance Agreement (EUMA)
I accept the agreement
I do not accept the agreement
< Back
Next >
Cancel

Click I accept the agreement if you accept the agreement and then press Next.

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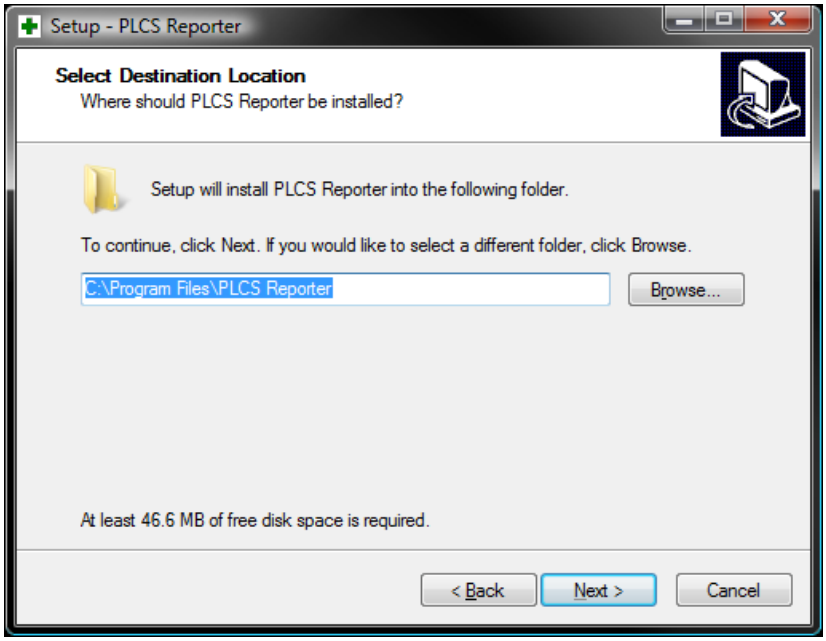
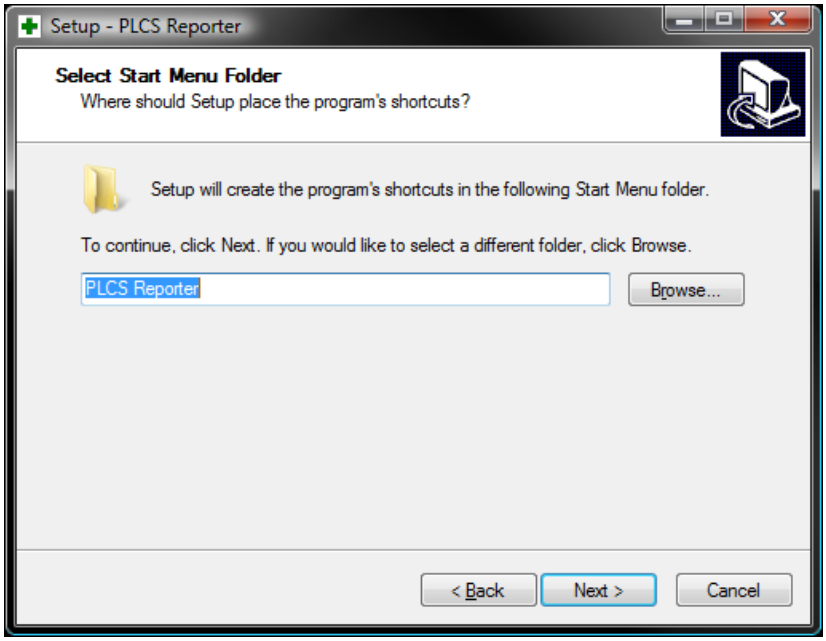

Setup - PLCS Reporter
Select Destination Location
Where should PLCS Reporter be installed?
Setup will install PLCS Reporter into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\PLCS Reporter
Browse...
At least 46.6 MB of free disk space is required.
< Back
Next >
Cancel

The installer will prompt you for the location to install PLCS Reporter on your system.


Setup - PLCS Reporter
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
PLCS Reporter
Browse...
< Back
Next >
Cancel

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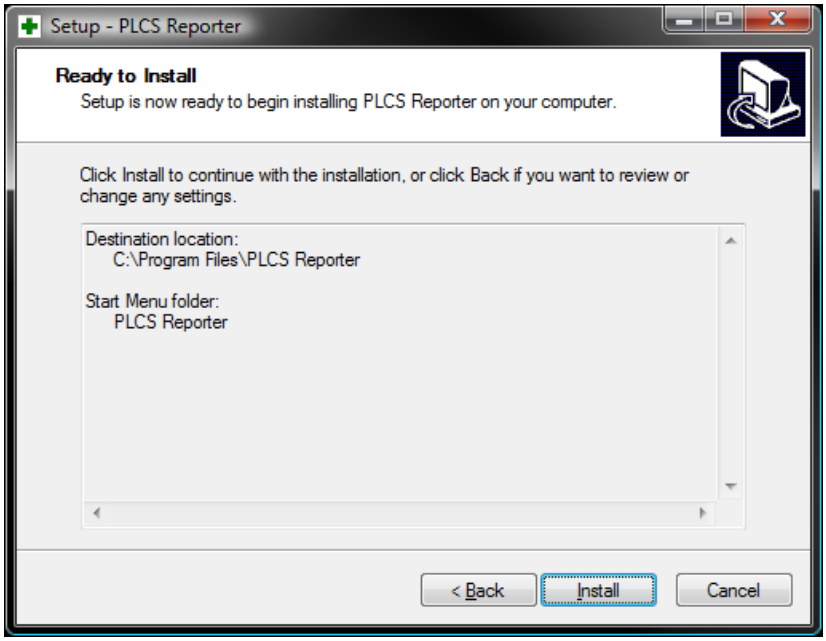
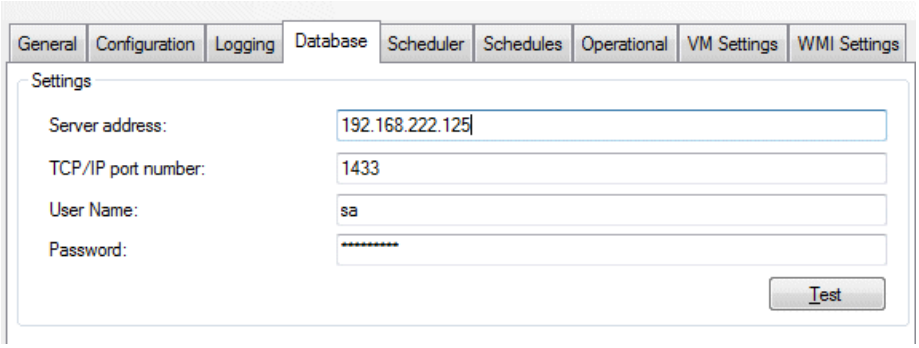

Setup - PLCS Reporter
Ready to Install
Setup is now ready to begin installing PLCS Reporter on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files\PLCS Reporter
Start Menu folder:
PLCS Reporter
< Back
Install
Cancel

Click Install, the PLCS Reporter will now be installed. After the package has been installed the Configuration Manager will open.
You might be prompted to configure and validate the database connection (MS SQL).



The MS SQL connection configuration fields are filled in automatically, if this is not the case please fill in the information.

The server address uses the DNS or TCP/IP address, do not use localhost or 127.0.0.1. In case the Configuration Manager is installed on the same system as Microsoft SQL Server 2012 R2 Express it will detect the communication port on the system.

For the database connection a default username and password is defined during installation.
The default user name and password are:

User name: sa
Password: p@ssw0rd&

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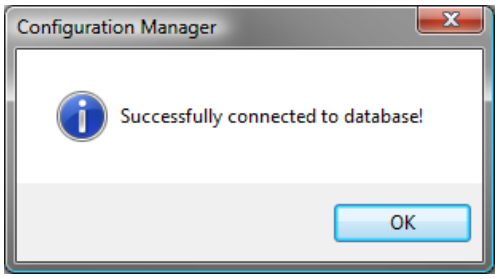
Then click on the test button:



If everything is configured correctly you will see the above message, click Apply to save the settings.

After this section a TSM server connection can be added, please refer to Add TSM Server section.

After a successful data collection you will see a message at the bottom which states Cleanup Agent. The data collection is done.

Setup - PLCS Reporter
Completing the PLCS Reporter Setup Wizard
Setup has finished installing PLCS Reporter on your computer. The application may be launched by selecting the installed icons.
Click Finish to exit Setup.
Finish

Press finish at the installation screen to end the installation.

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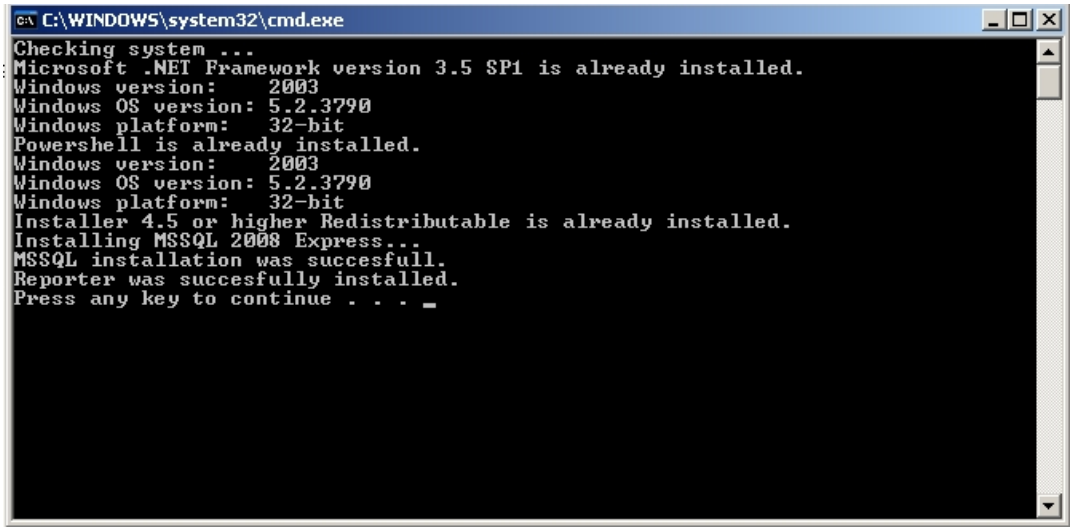
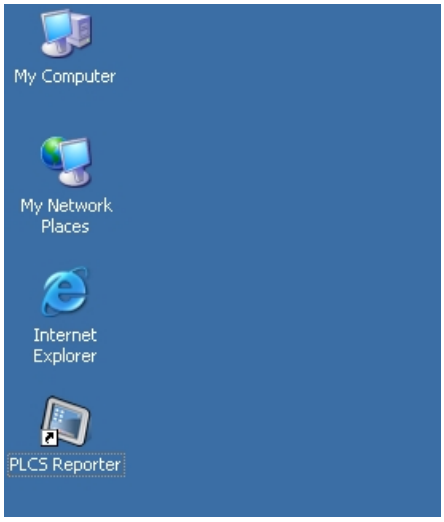

C:\WINDOWS\system32\cmd.exe
Checking system ...
Microsoft .NET Framework version 3.5 SP1 is already installed.
Windows version: 2003
Windows OS version: 5.2.3790
Windows platform: 32-bit
Powershell is already installed.
Windows version: 2003
Windows OS version: 5.2.3790
Windows platform: 32-bit
Installer 4.5 or higher Redistributable is already installed.
Installing MSSQL 2008 Express...
MSSQL installation was succesfull.
Reporter was succesfully installed.
Press any key to continue . . .

Press any key to end the installation script setup.cmd and close the command window.



On the desktop a shortcut to start PLCS Reporter has been created.

PLCS Reporter can only start when you have a valid license.

Read here to see how you can obtain a license number for your system.

End of installation procedure.

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4.3 Manual Installation and Configuration

Follow the following topics for manual installation of MS SQL Database or Reporter. Otherwise use the automatic installation.

- Database installation and configuration
- Reporter installation

4.3.1 Database

The following steps need to be performed for PLCS Reporter to work with a Microsoft SQL Server.

A completed install of Microsoft SQL Server.

Complete the following steps:

- On the Microsoft SQL Server open the SQL Server Configuration Manager and open the branch for Network Configuration.
- Right mouse click on TCP/IP and Enable the protocol, you need to restart the SQL service.
- Double click on the TCP/IP protocol entry and select the IP Addresses tab page, scroll down and verify the TCP dynamic port, you need this address later.

Complete the next steps:

- Open the SQL Server Management Studio and select the root click with right mouse on properties.
- Select the security page and select, SQL server and Windows Authentication mode and click OK.
- Select in the tree the Security branch and right mouse click in the Logins (Summary Tab)
- Select New Login …
- In the dialog Login – New type a new login name (e.g. reporter) and select SQL Server authentication.
- Choose a password and confirm the password (e.g. p@ssw0rd&).
- Uncheck Enforce password expiration and User must change password at next login.
- Select the Server Roles page and check dbcreator.
- Click on the OK button.

Now you can install Reporter software and validate the connection with the PLCS Reporter Configuration Manager.

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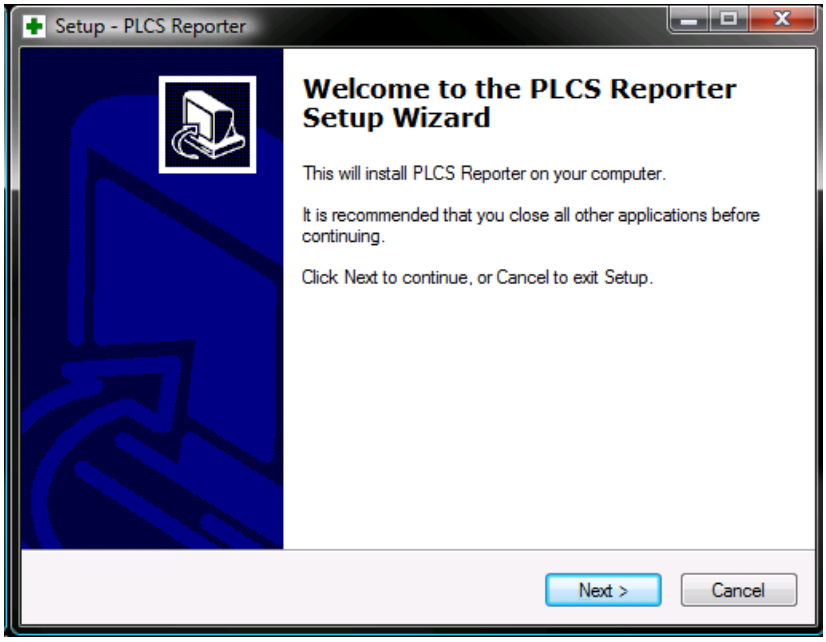
4.3.2 Reporter

Copy the PLCS Reporter Installation Package to the machine or run it directly from its current path. The installation package is provided together with Microsoft SQL Server package.
When installing PLCS Reporter manually Microsoft SQL Server will not install automatically, please install MS SQL manually before installing PLCS Reporter.

On the Windows system where you wish to install PLCS Reporter, you need Administrative rights.

Start the installer on the system where you wish to install. To start the installation, double click or run the install executable from a Windows Command line.


Setup - PLCS Reporter
Welcome to the PLCS Reporter Setup Wizard
This will install PLCS Reporter on your computer.
It is recommended that you close all other applications before continuing.
Click Next to continue, or Cancel to exit Setup.
Next >
Cancel

Select Next to continue installation.

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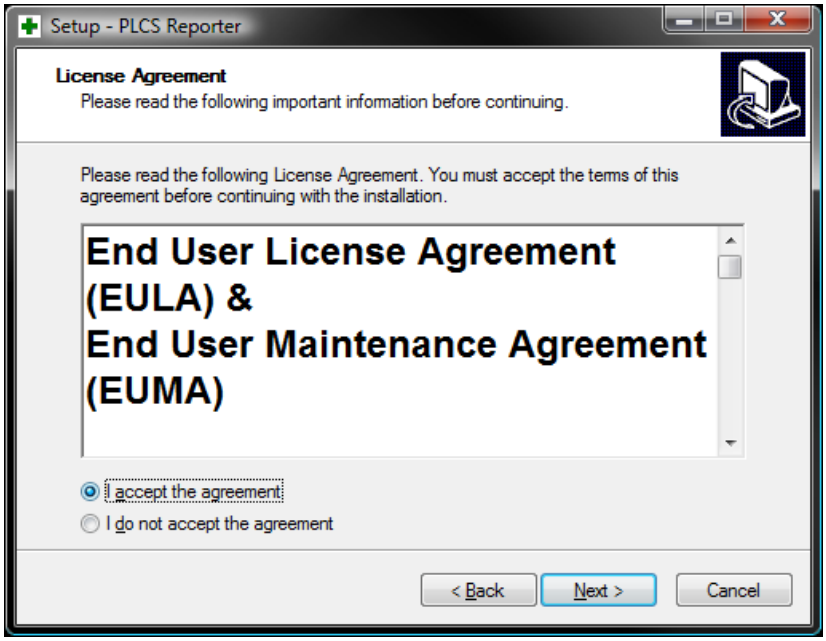
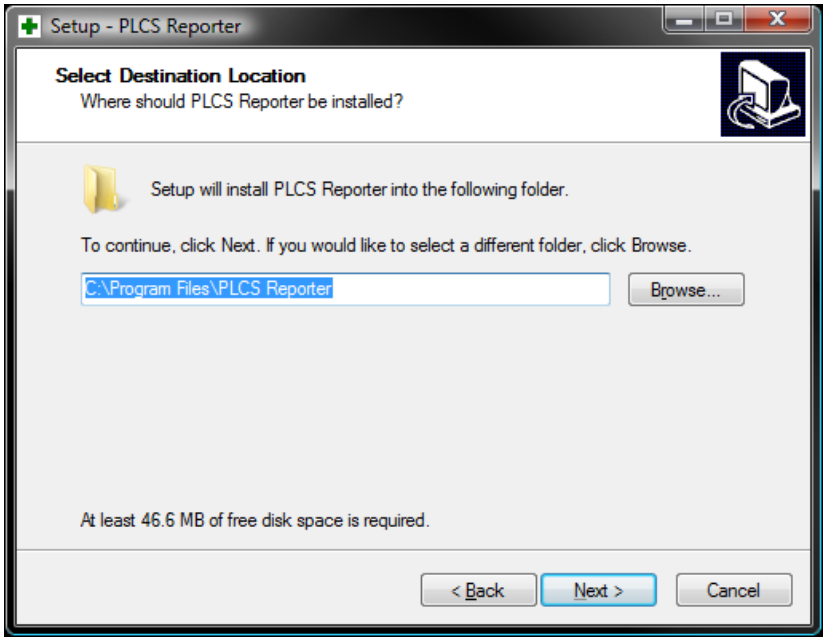

Setup - PLCS Reporter
License Agreement
Please read the following important information before continuing.
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.
End User License Agreement (EULA) &
End User Maintenance Agreement (EUMA)
I accept the agreement
I do not accept the agreement
< Back
Next >
Cancel

Carefully read the terms and conditions of this agreement (EULA and EUMA) before installing this software. Installing this software indicates your acceptance of these terms and conditions.

Click Next to continue the installation.


Setup - PLCS Reporter
Select Destination Location
Where should PLCS Reporter be installed?
Setup will install PLCS Reporter into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\Program Files\PLCS Reporter
Browse...
At least 46.6 MB of free disk space is required.
< Back
Next >
Cancel

You may change the default installation path of PLCS Reporter, click Next to continue the install.

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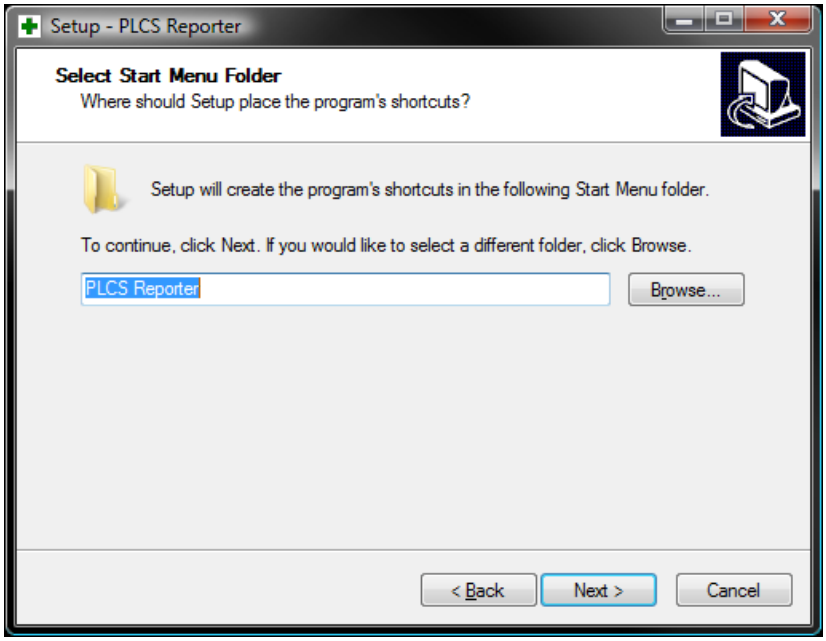
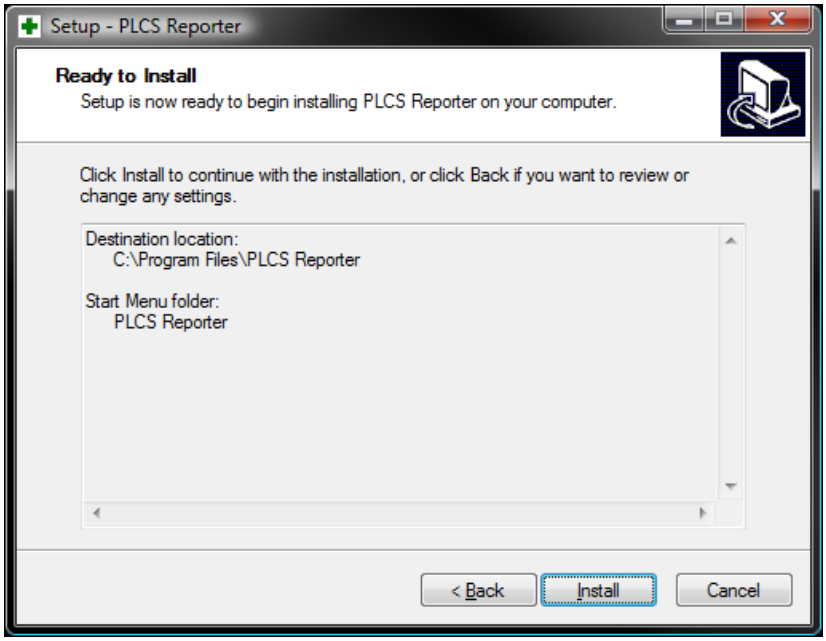

Setup - PLCS Reporter
Select Start Menu Folder
Where should Setup place the program's shortcuts?
Setup will create the program's shortcuts in the following Start Menu folder.
To continue, click Next. If you would like to select a different folder, click Browse.
PLCS Reporter
Browse...
< Back
Next >
Cancel

You may change the default start menu shortcut folder of PLCS Reporter, click Next to continue the install.


Setup - PLCS Reporter
Ready to Install
Setup is now ready to begin installing PLCS Reporter on your computer.
Click Install to continue with the installation, or click Back if you want to review or change any settings.
Destination location:
C:\Program Files\PLCS Reporter
Start Menu folder:
PLCS Reporter
< Back
Install
Cancel

Last dialog before installation starts, click Install to start the installation.

Next step is to Configure the Installation.

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4.4 Configure

The next step in installing PLCS Reporter is configuring a TSM server connection.

The Configuration Manager has automatically started. If this is not the case, start the Configuration Manager from the Windows start menu under Start Menu, All Programs, PLCS Reporter, Configuration Manager.

Select the Database Tab in the Configuration Manager and verify the configuration of the database settings (a Test connection is available, click Apply after a successful test).

Then refer to Add TSM Server to add a new TSM server connection.
After the wizard has closed, a update schedule has been added to the Schedules tab with type 'COLLECT' and the database name (Also a schedule to update the enterprise database 'Reporter').
To view the settings of the added TSM server connection, select the TSM server on the left in the list.

Select the Scheduler tab in the Configuration Manager and check if the Scheduler has been installed and started. If prompted click 'Yes' this will start the Scheduler Service.

Data collection of the TSM server should start within a few minutes.
You can verify that data collection has started in the Logging tab of the Configuration Manager. If this is not the case please refer to the section Troubleshooting.

Add VM Settings

The VM tab offers Asset information for VMware servers and Virtual Center.
To add a VMware server select the VM Setting tab and type:

- Server address (IP or DNS name) with its port (e.g. 192.168.1.120:8080)
- User name
- Password

Then click add the connection and password will be verified and the server address will be extended (e.g. https://192.168.1.120:8080/sdk) to use the VM SDK.

Click Save to store this information.

The ClientAgent will then read the config and query the added connections. The ClientAgent is scheduled on the first Saturday following the installation. Check the Schedules tab for a type 'OTHER' schedule and database name VM_WMI. It is also possible to run the update manually (e.g. ClientAgent.exe /vm).

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Add WMI Settings

The WMI tab offers Asset information about Windows servers on the LAN through WMI. To add a WMI servers scan click on the WMI Settings tab:

- Add a domain name
- Type in a user with enough rights
- And the password of this user
- Click Add
- Click Save

Then you need to add a IP address, IP address range or All TSM server addresses and select the user ID from previously added account.
Then click Add and the Save.

The ClientAgent will then read the config and query the added connections. The ClientAgent is scheduled on the first Saturday following the installation. Check the Schedules tab for a type 'OTHER' schedule and database name VM_WMI. It is also possible to run the update manually (e.g. ClientAgent.exe /wmi).

To use the PLCS Reporter application with the newly created database, you need a license- or demo key.
Please refer to the next section License Request.

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4.5 License Request

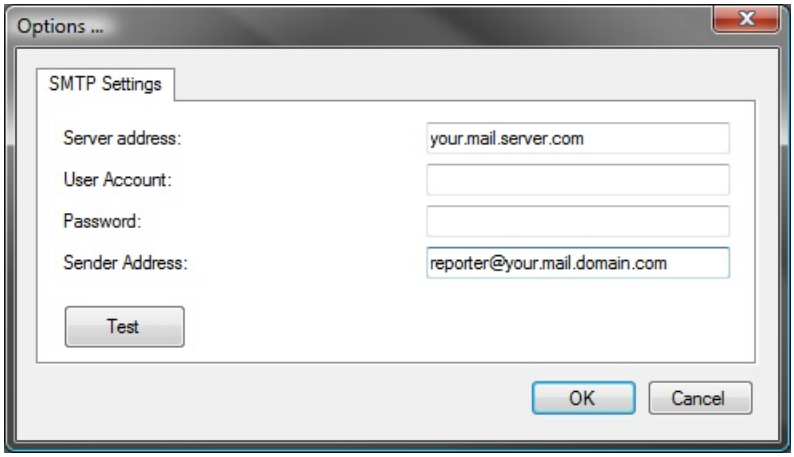
For using the software a license per TSM server instance is needed (e.g. 2 TSM servers means 2 license keys for PLCS Reporter even if the TSM server instances are situated on the same hardware). Requesting a license key can be done through the Configuration Manager or by E-mail.

Without a license key you can use the PLCS Reporter only in View Mode (no reports can be generated).
TSM data collection is possible without a license key.

In the Configuration Manager select the TSM server for which you wish to request a license key, which has been added in Configure.

Then select in the menu File, Request License Key ... a message box will prompt you with the question 'Would you like this request to be sent by E-mail?' in case you can access a SMTP server, click 'Yes' otherwise 'No'.

If you have chosen 'Yes' a dialog box will ask you for the SMTP settings:



Options dialog for SMTP settings

Fill in the SMTP server address and the sender address. User account and password are optional.
Click test to send a Test Message to the sender. A message box will display the status of the E-mail sent action.
Then click OK to send the license key request.

In case you have chosen 'No', Notepad will open with the following text:

TSM Server Properties
TSM server name: TSMSERVER
TCP/IP or DNS address: tsmserver.domain.com
TCP/IP port number: 1500

Please send this key request information to: info@plcs.eu

Copy paste the text into a E-mail and send it to info@plcs.eu.

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After receiving the license file, copy the file into the program path and start PLCS Reporter to verify the license(s).

4.6 License File

In the current version PLCS Reporter the separate license keys have been replaced by a single license file.

After sending the license request with either the following information (on the TSM Admin command line perform a Querty STatus):

- TSM server name
- TSM server DNS or IP address
- TSM server port address

or perform a QUERY STATUS from the TSM server command line.

You will receive a 'license.lic' file, copy this file into the PLCS Reporter installation directory path (e.g. 'C:\Program Files\Reporter').
After this start the Reporter executable and the license will be read.

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Part V

5 Application Components

PLCS Reporter consists of the following components:

Programs	Feature
PLCS Reporter	Report creator, viewer and user interface
Configuration Manager	Configuration user interface
Scheduler Service	Scheduler service
Agent Command line	Agent for collecting data from TSM from command line
Client Agent	Agent for collecting WMI and VMware server data
Reporter Command line	Command line report generator

5.1 Reporter

The Reporter is the main user interface of PLCS Reporter.
This program allows you to tap into the data that was collected by the Reporter Agent from a database.

The PLCS Reporter user interface provides some of the following functions:

- View and Generate Reports
- Node Info drill down reports of TSM client nodes
- Create Node Collocation groups
- Node Performance report list
- Database Browser
- Timeline browser (graphical overview of process, client and drive utilization)
- Export possibilities in XML, CSV and PDF format
- A smart TSM administrative Command Line
- Activity log viewer with advanced filter capabilities
- Restore speed estimation
- Enterprise Reporting
- Charge Back
- and many other functions ...

All functions of PLCS Reporter are described in section Reporter GUI.

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5.2 Configuration Manager

The Configuration Manager is a program for managing PLCS Reporter.

The program can be started from the Start Menu, All Programs, PLCS Reporter, Configuration Manager.

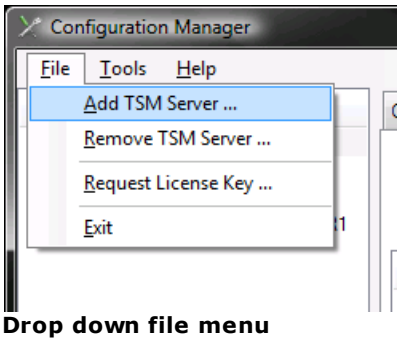
The Configuration Manager allows you to:

- Add TSM server and Remove TSM server
- Configure the time of the data collection
- Review data collection logs
- Control the Reporter Collector (Stop, Start, Restart)
- Control database backup time and location
- Perform a license key request

5.2.1 Add TSM Server

The Configuration Manager, to add a new TSM server connection:

- Select in the drop down menu under File
- Click Add TSM Server
- This will then open the Add a TSM Server Wizard



Drop down file menu

With the help of this wizard you are configuring a connection to the TSM server.

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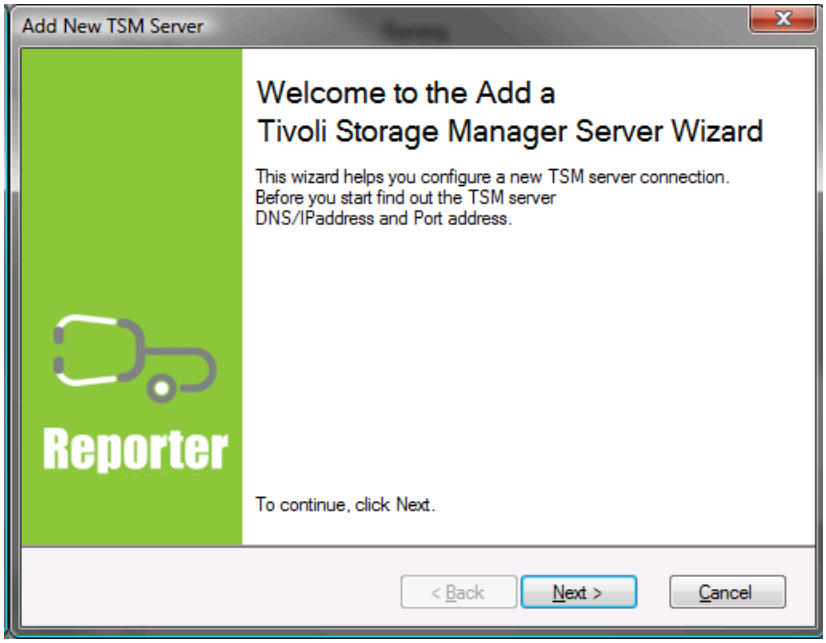
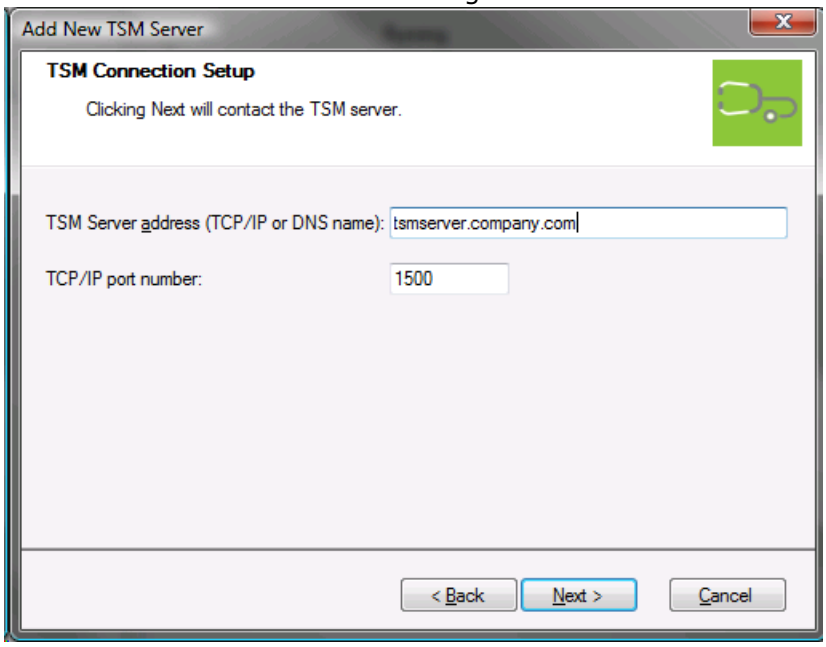
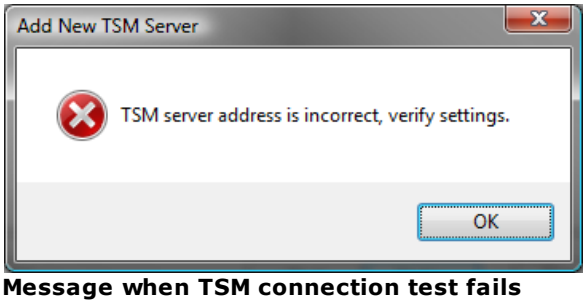

Add New TSM Server
Welcome to the Add a
Tivoli Storage Manager Server Wizard
This wizard helps you configure a new TSM server connection.
Before you start find out the TSM server
DNS/IPaddress and Port address.
Reporter
To continue, click Next.
< Back
Next >
Cancel

To continue the TSM connection configuration click Next.



Fill in the TSM servers TCP/IP address or DNS address and change the port address in case the default (port 1500) was changed, then click Next.
The connection is verified. If this is incorrect you will see the following message.



Message when TSM connection test fails

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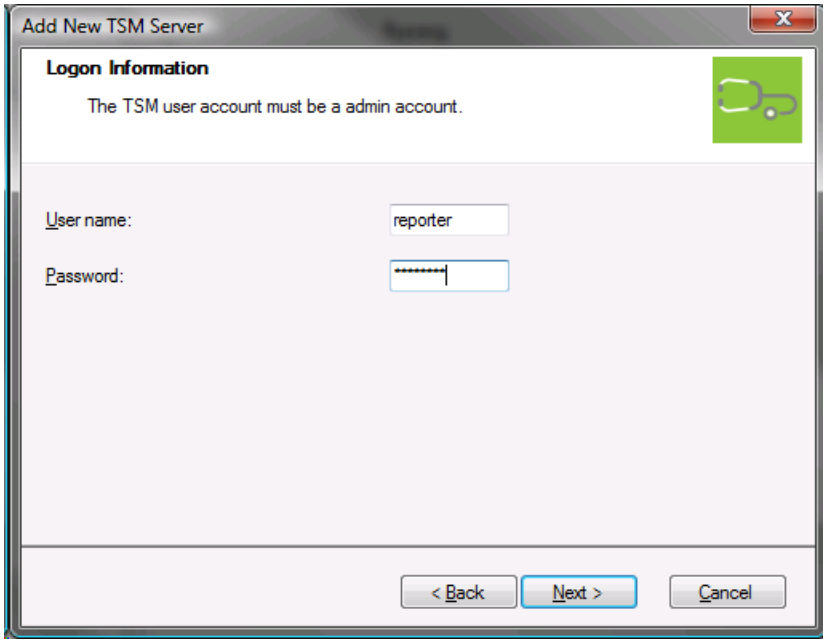
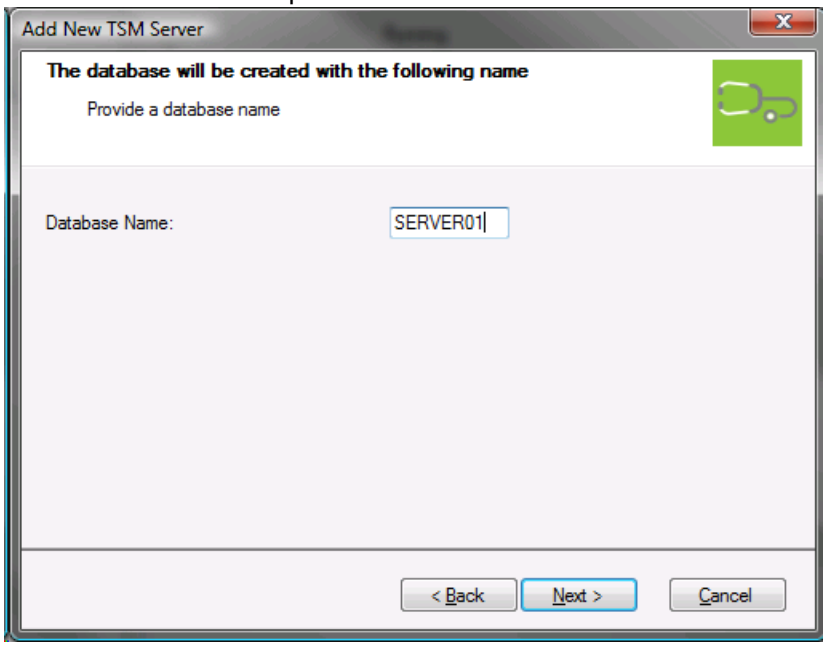
Change the settings to reflect the accurate TSM connection.
The next wizard page is displayed. Fill in the account settings that you using to connect to the TSM server.
An account with System Privilege is necessary. The password is encrypted and kept in the Windows registry.

It is recommended to create a separate TSM user account for this purpose (with System Privilege), e.g. reporter.



Fill in the user name and password click Next to validate.



Fill in a database name (MS SQL) for the data of use the suggested name.

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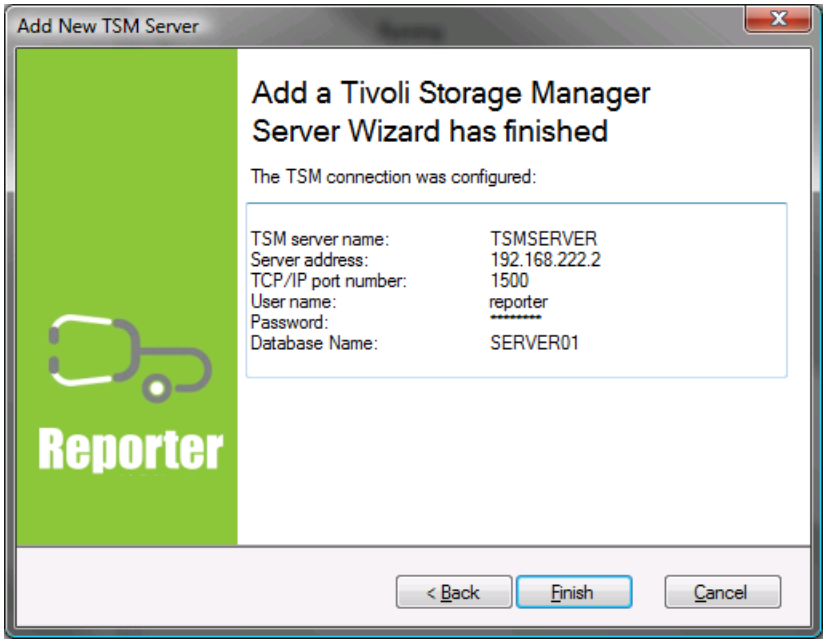
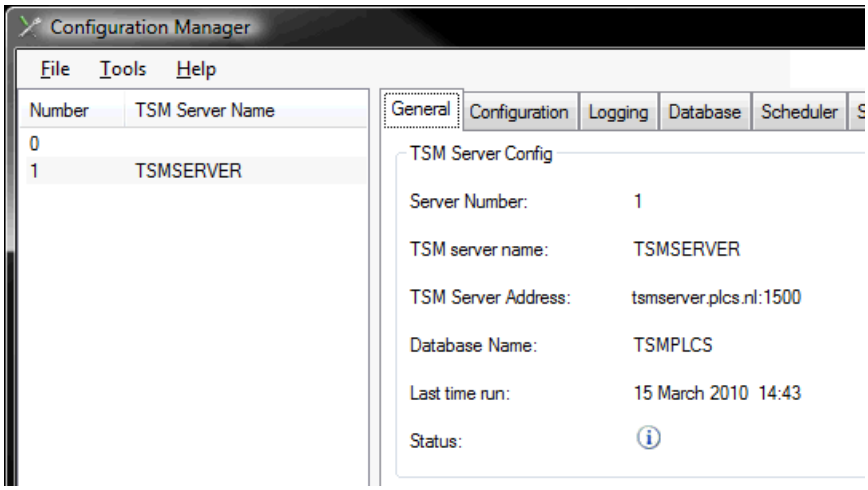


The wizard will show a final configuration screen. Click Finish to complete the configuration.
After the wizard has closed, you might need to enable the TSM server for data collection.



Configuration Manager with general tab selected

To view general configuration select the TSM server that you just created in the left pane.
Click on the database tab to verify the database connection, click test and then apply in case the test is successful.
Select the scheduler tab and verify if the scheduler was installed and is running (if not click install and then start).
Data collection of the TSM server should start within a few minutes. Click update log to refresh the last scheduler events.

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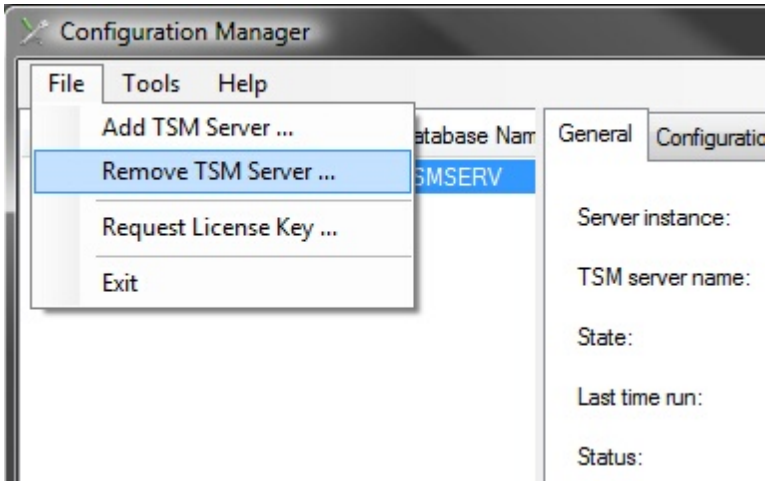
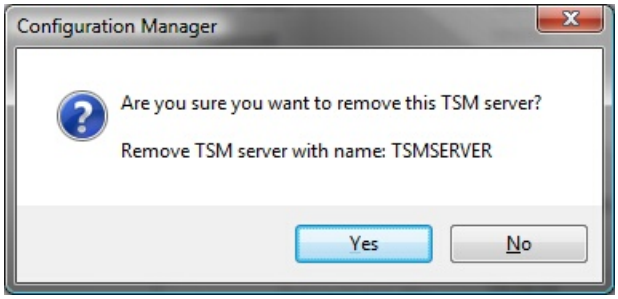
5.2.2 Remove TSM Server

To remove a TSM server connection from data collection.
Select the server connection in the list then select File from the drop down menu and click Remove TSM Server.



File drop down menu of Configuration Manager

Next you need to confirm the removal of the selected server.



Remove TSM server message

The removed TSM server will no longer be on the TSM server list.
The data collection schedule in the Schedules tab, the 'COLLECT' schedule will be removed from the list.

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5.2.3 Tab Pages

The Configuration Manager uses a tab interface for the most common functions.

To configure and view a TSM server connection first select the TSM server instance on the left in the list.
Then select one of the tab pages, the following tab pages are available:

Tab Page	Feature
General	General connection information and license information
Configuration	Configures the TSM connection
Logging	Logging information of a TSM server data collection
Database	Database connection management
Scheduler	Reporter Scheduler management
Schedules	Schedules management for data collection, report generation, etc.
Operational	Operational Email management
VM Settings	VMWare server connection management
WMI Settings	WMI account and connection management

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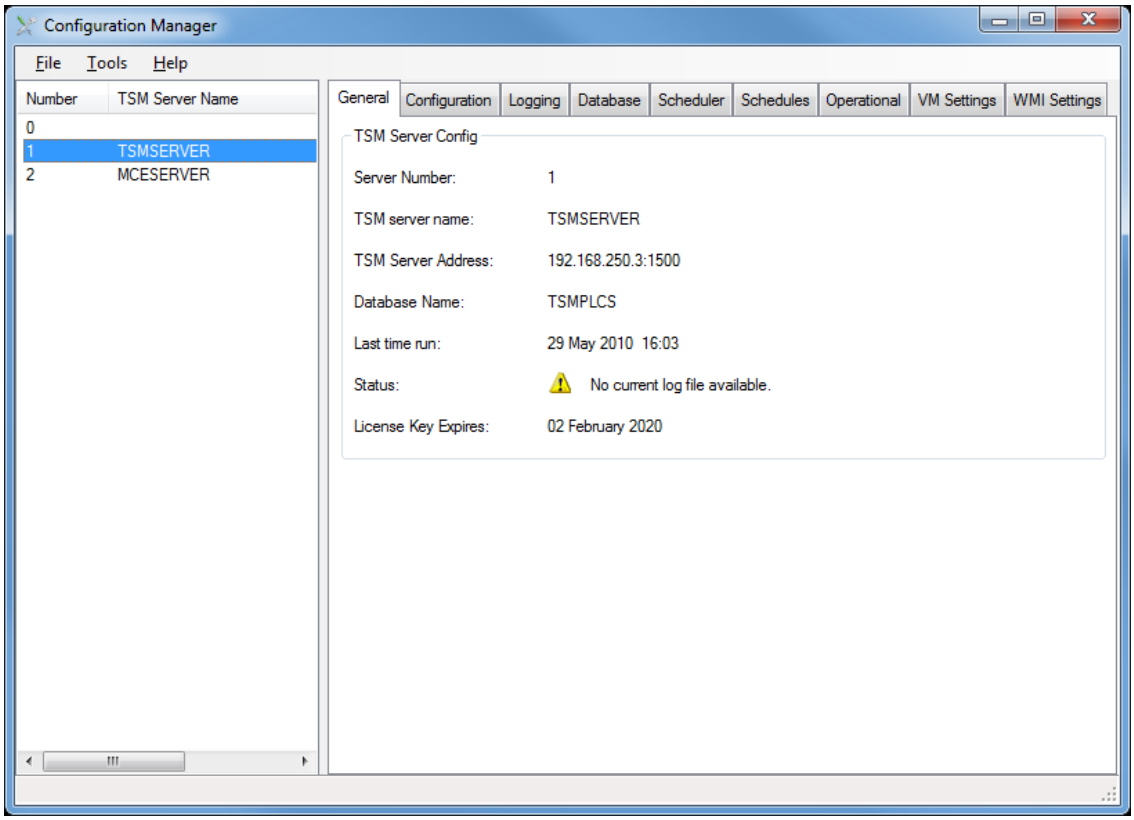
5.2.3.1 General Tab

The first tab is the General tab. This tab page displays information about the selected TSM server.

Select a TSM server connection you would like to configure from the list on the left.



Configuration Manager with general tab selected

In this tab the following information is available:

- Reporter server number
- TSM server name
- TSM server address
- MSSQL Database name
- Last Collector Agent run
- Status, indicates status of the collector Agent last log
- License key expiration date

A newly configured TSM server connection is by default scheduled for data collection in the Schedules tab.

To disable the TSM server data collection, select the Schedules tab, then the database name and select right mouse menu Inactive, then click Apply .

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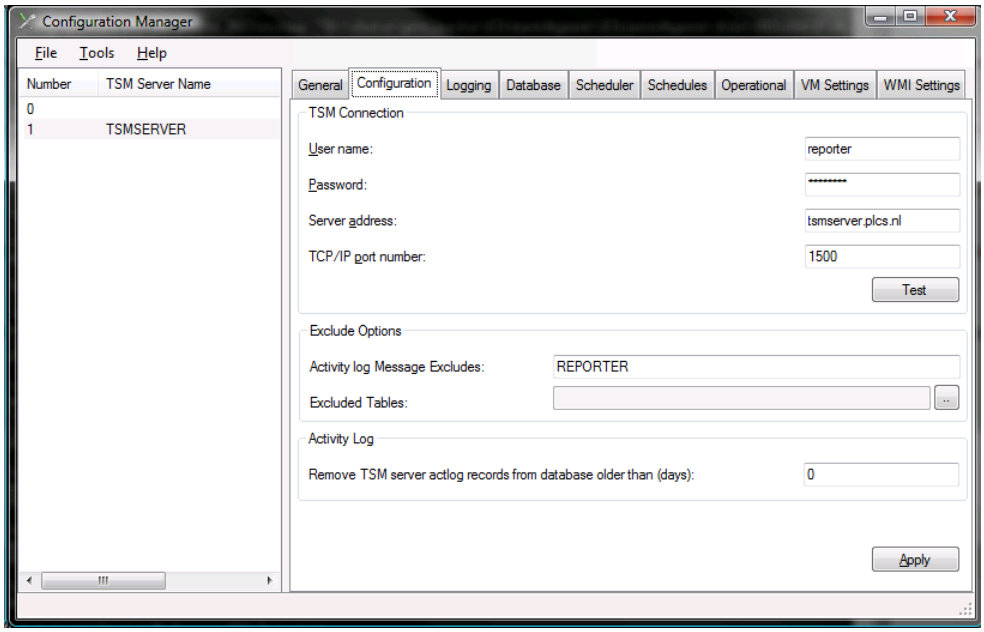
5.2.3.2 Configuration Tab

The second tab in the Configuration Manager is the Configuration tab. This tab allows you to configure and validate the TSM server connection.
Select the TSM server instance you would like to configure from the list on the left (The connection number 0, Reporter cannot be selected with this tab).



Configuration Manager with configuration tab selected

Following parameters can be configured:

- User name (TSM user account, with System Privilege)
- Account password
- TSM server address (TCP/IP or DNS address)
- TSM administrative port address
- License key expiration (not configurable)
- License key generation date (not configurable)

After changing one of the settings, click Test. The Configuration manager will contact the TSM server and validate the new values. One of the following messages will pop up.

- TSM server connection was verified
- TSM server port address is incorrect, verify settings (correct the parameter and try again)
- TSM server address is incorrect, verify settings (correct the parameter and try again)
- TSM server user is incorrect, verify settings (correct the parameter and try again)
- TSM server password is incorrect, verify password (correct the parameter and try again).

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Then after a successful test, click Apply to save settings.

In the Exclude Options group it is possible to exclude Activity Log messages from being collected into the database. Type the text inside the box you wish to exclude separated by a semicolon (e.g. REPORTER;EXCLUDE MESSAGE).

The second option in the Exclude Options group allows you to exclude complete tables from being collected into the database. This feature is commonly used when there is a error in on of the TSM tables (a TSM database audit might be necessary). This will have effect on the reports and/or working of PLCS Reporter.

The last item in the Configuration tab allows you to remove Activity log entries from the database. This option is configured in number of days, and is used in case you like to expire old activity log entries.

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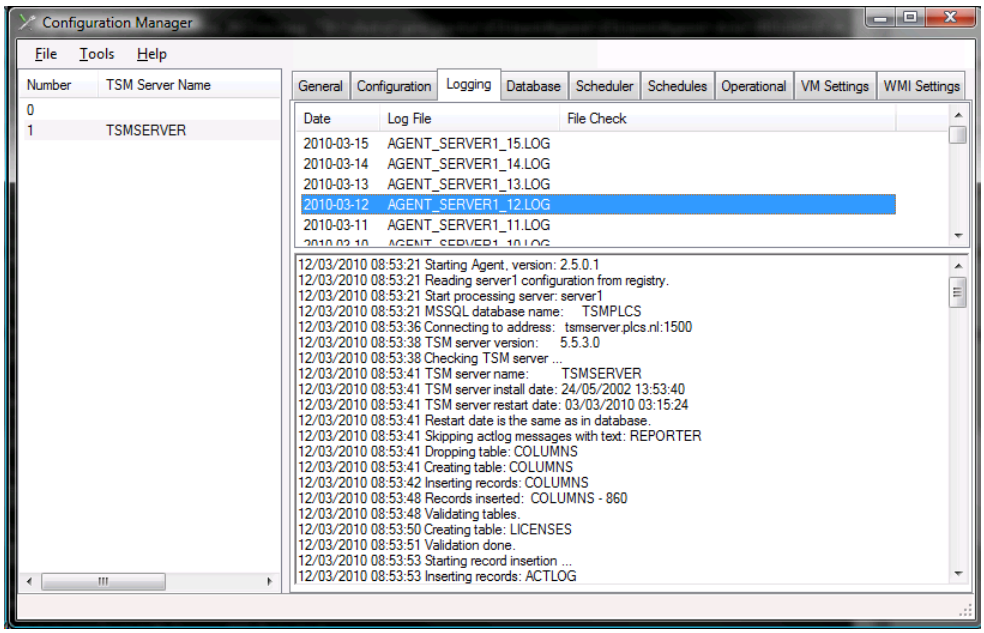
5.2.3.3 Logging Tab

The third tab in the Configuration Manager is the Logging tab.
This tab allows you to view the connection logs of the data collector agent and enterprise agent.

Select the TSM server instance you would like to configure from the list on the left.



Configuration Manager with logging tab selected

Information shown in the logs is related to the TSM connection and the ODBC database driver.
The log contains information about failures, errors, amount of records inserted, database creation, etc.
Please refer to Troubleshooting section when errors occur.

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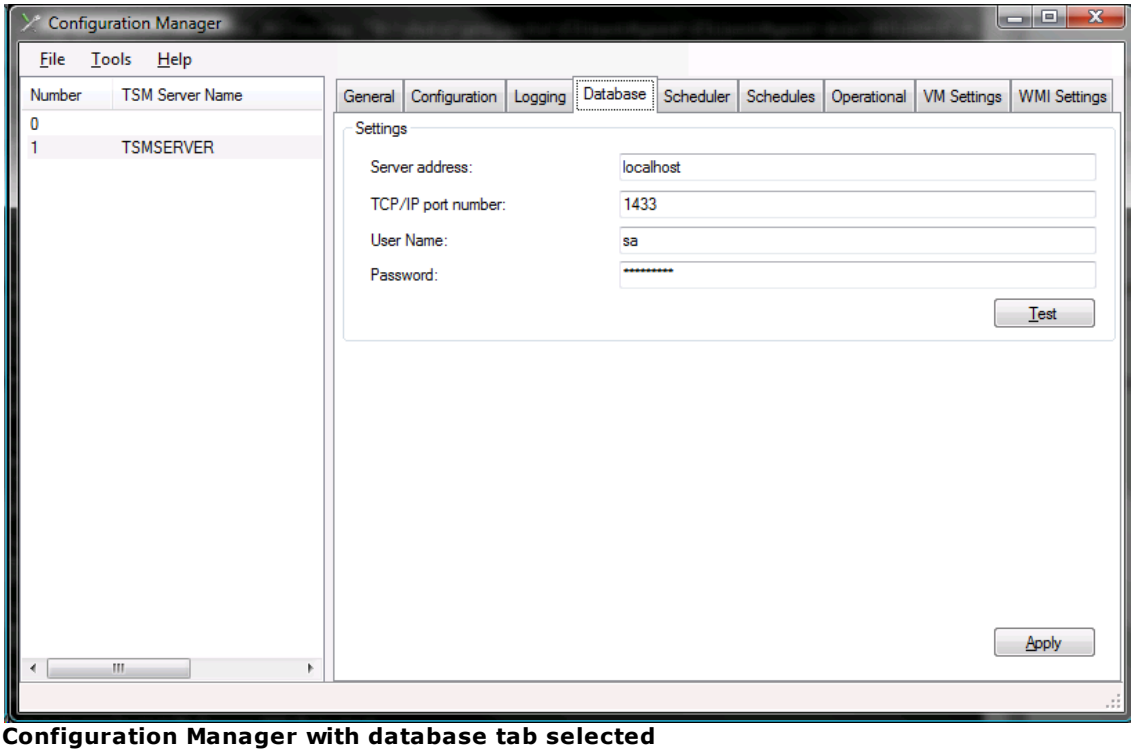
5.2.3.4 Database Tab

The last and fifth tab page configures the database connection and local backup. The information in the Settings group allows you to configure the database connection information.

- Server address, database server address (note: use the TCP/IP address or DNS name of the database server)
- TCP/IP port number, database server communication port (SQL port is automatically read from registry if available)
- User name (SQL user name defined by user)
- Password

After changing database connection settings click on the Test button. In case the connection verifies successfully click Apply.



Configuration Manager with database tab selected

Making a regular database backups of the database is recommended.

To backup a MS SQL databases use Microsoft SQL Server Management Studio Express. The TSM TDP for Mail client does not support MS SQL Express.

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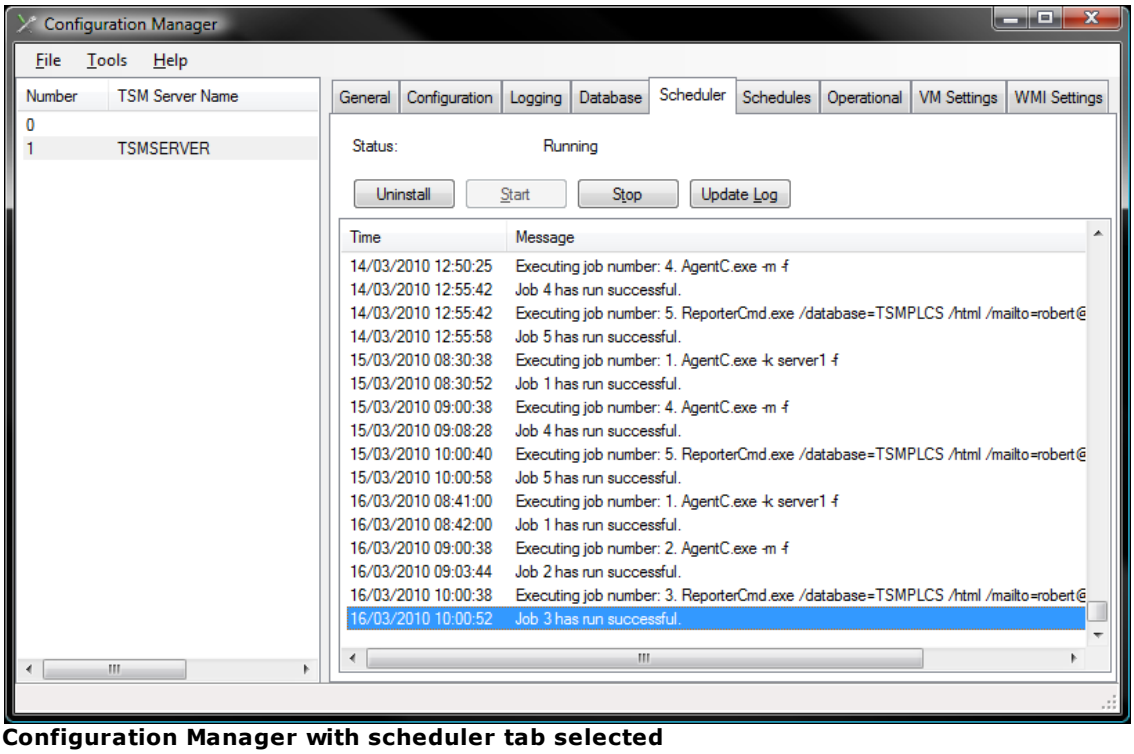
5.2.3.5 Scheduler Tab

The next tab in the Configuration Manager is the Scheduler tab.
This tab page is a management page for the Scheduler service (one Scheduler service is installed for all TSM instances).



Configuration Manager with scheduler tab selected

The buttons on the Scheduler tab page allow you to:

- Start (is disabled when the service is running), start the Scheduler service
- Stop (is disabled when it is stopped), stop the running Scheduler service
- Show log will query the Windows Event log for events of the Scheduler service
- Reset will reset the Reporter Agent (start date) and restart the Scheduler service

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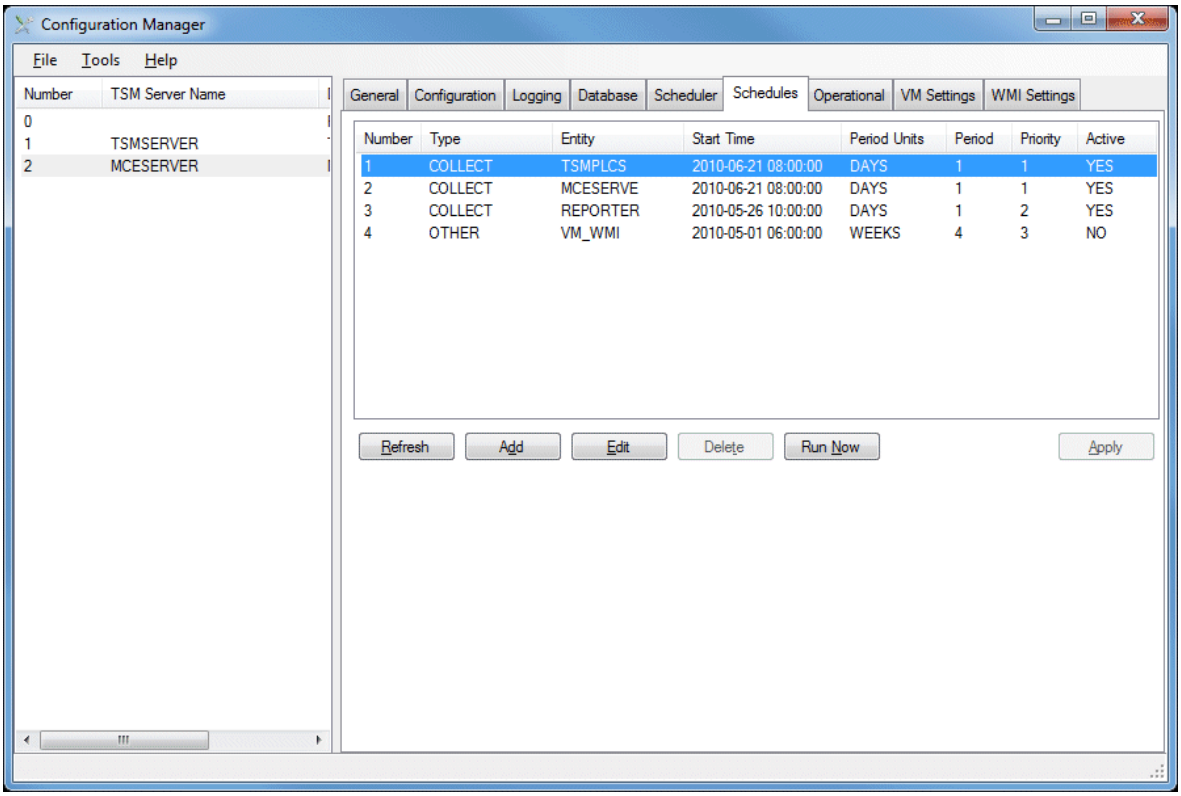
5.2.3.6 Schedules Tab

The Scheduler tab in the Configuration Manager is used for scheduling processes for data collection, report generation, operational report email generation, enterprise reporting, WMI and VMWare data collection.

The schedule type 'COLLECT' are automatically added and removed from the schedules. A user can only adjust the moment they execute or deactivate them.



Sample of Configuration Manager with Schedules tab open.

The following types of schedules can be added or configured in the Schedules tab:

- COLLECT, cannot be added or removed by user, are generated by adding a TSM server connection
- OPERATIONAL, are added by user to generate a operational HTML report
- GENERATE, are added by user to generate a enterprise, server or node Reporter report
- OTHER, are added by user ot automatically by VM/WMI for scheduling data collection

Notes and rules for schedules:

- All schedules can be set to either Active or InActive
- The scheduled time and date can also be changed.
- After changing a schedule click Apply.
- It a schedule is running the schedules cannot be changed.
- Schedules type COLLECT are added and removed automatically, when adding or removing a TSM server connection.

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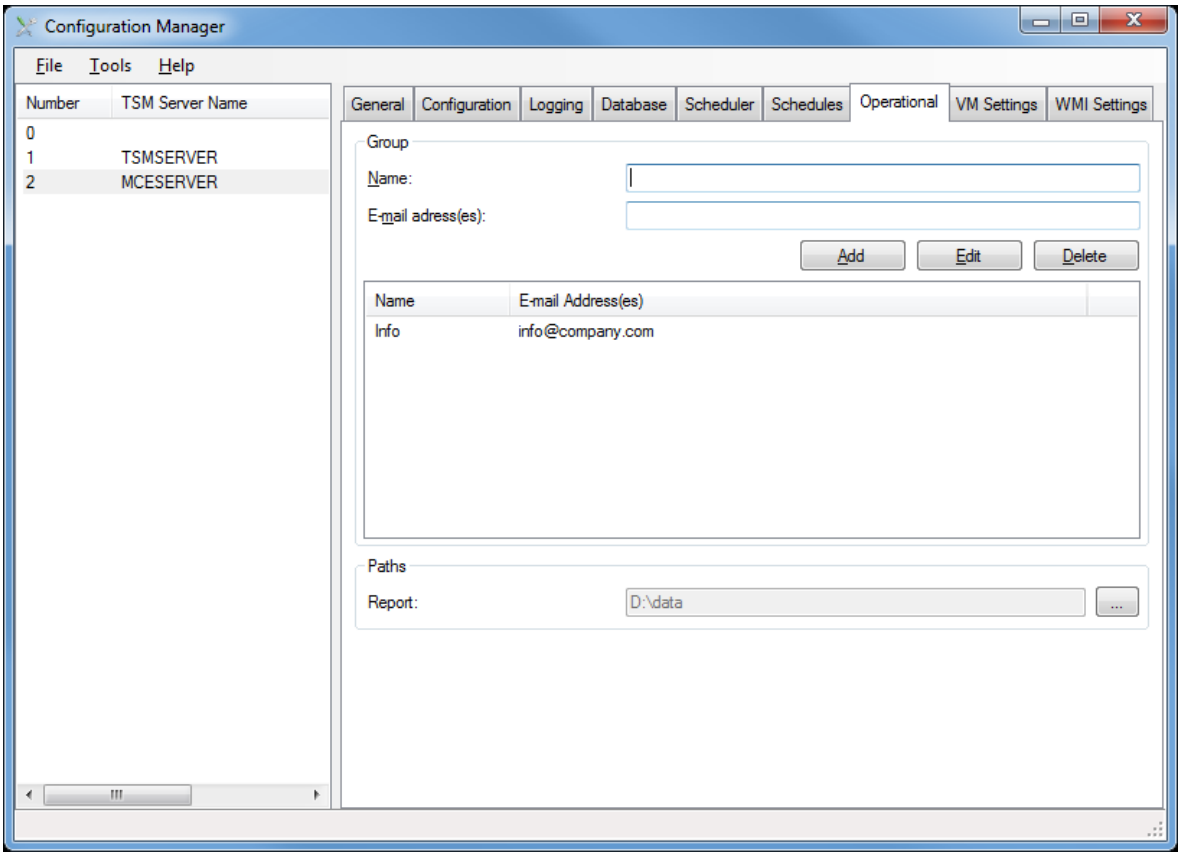
- A Reporter Collect is by default created to do data gathering for the enterprise database.
- Default a COLLECT type schedule is performed once a day, by decreasing the execute period data collection can be performed several times a day.

5.2.3.7 Operational Tab

The next tab in the Configuration Manager is the Operational tab.
This tab page is a management page for the configuring Email addresses for mailing the HTML reports.



Sample of Operational tab

The following functions are available:

- Add, type a group name and an email address (or multiple, seperated by a semicolon), click Add.
- Edit, change the group name and or the email address, the item will be removed from the list and can be edited in the text boxes.
- Delete, select a email address and group name then click delete, the item will be removed from the list.

Settings are saved with every change.

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Note: Verify the group name in a schedule type 'OPERATIONAL'. The email information in the schedule might not update automatically.

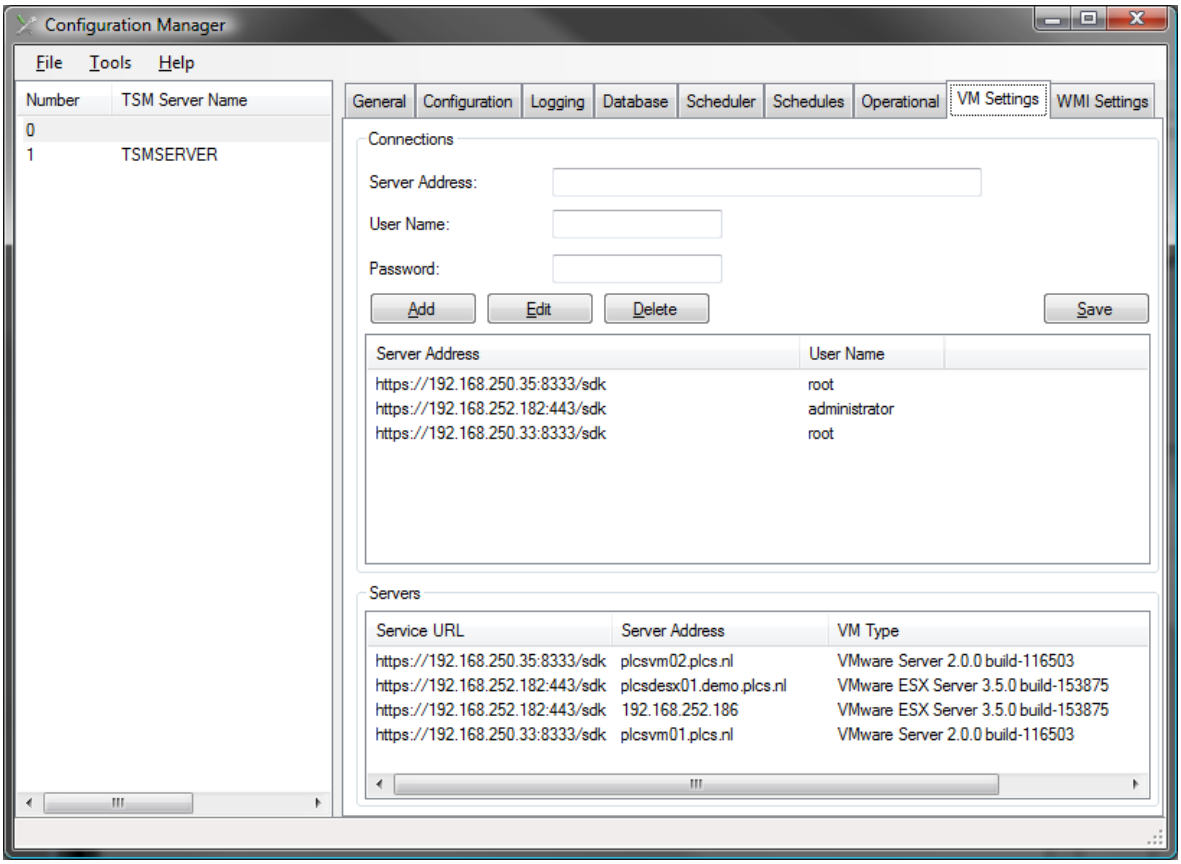
5.2.3.8 VM Settings Tab

In the VM Settings tab you can enter the DNS or TCP/IP address of the following components:

- Virtual Center (VC)
- Webinterface of a GSX/VMWare server
- Any VMWare server or VI component above version 3.x is supported (also vSphere 4 is tested)

This tab is used for creating an inventory of your VMWare Servers or VM vCenter for Asset reporting in Reporter.

Note: To connect to VMWare version 4, the SDK webservices VI toolkit is used which is backwards compatible.



Sample of VM settings tab

The following functions are available:

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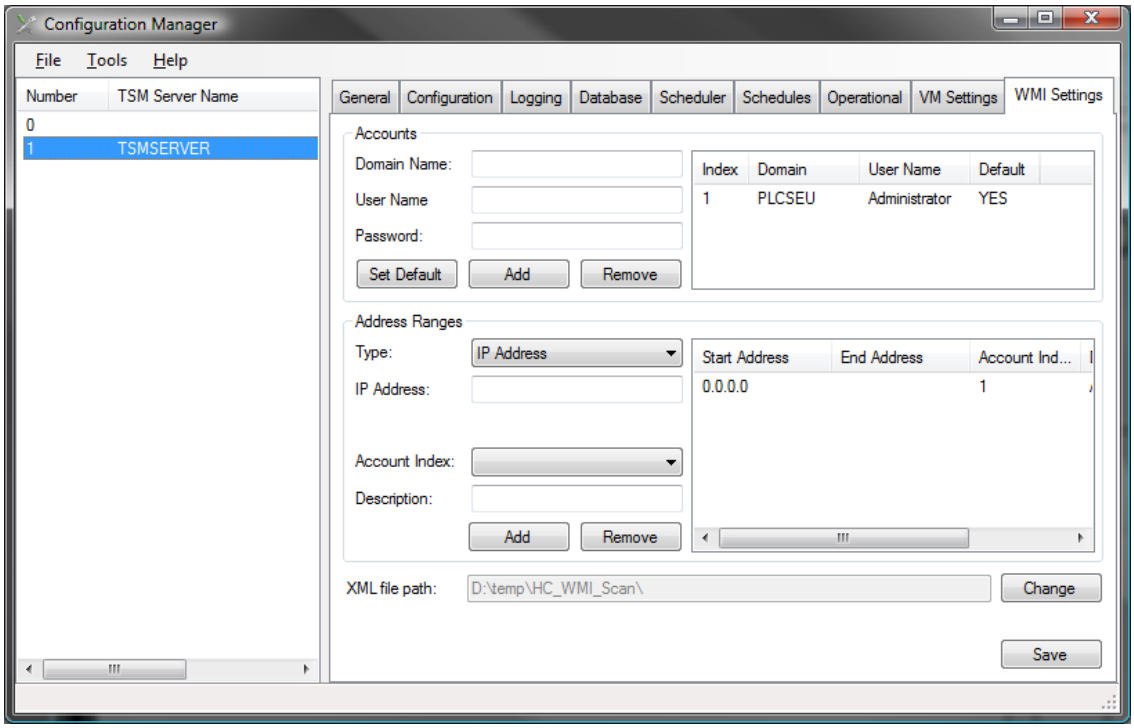
- Add, validates and adds a VMWare server connection to the list
- Edit, edit a existing VM connection
- Delete, removes a existing connection

After VM data collection has run (the "ClientAgent.exe"), the servers list will display the VMWare servers information when selecting the connection.

5.2.3.9 WMI Settings Tab

Last tab is WMI Settings tab, WMI (Windows Management Instrumentation) is a component of Windows which is described here in detail.

This tab is used for creating an inventory of your Windows Servers for Asset reporting in Reporter.
Using WMI, information can be retrieve from any Windows system. This is supported for physical and also virtual systems. WMI is also used for detection of local file systems on the a client.
To run the WMI collection manually you need to run from the Windows command line the "ClientAgent.exe /wmi" command.



Sample WMI settings tab

There are three ways of getting WMI information from Windows clients:

- IP address which does a scan of that IP address (only information of a Windows system will be retrieved)
- IP range with a starting and ending address where all clients in that range are scanned (only information of a Windows system will be retrieved)
- All nodes TCP/IP addresses backing up to the TSM server

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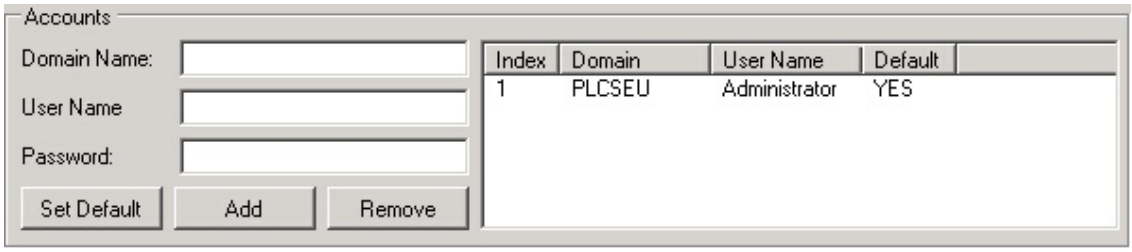
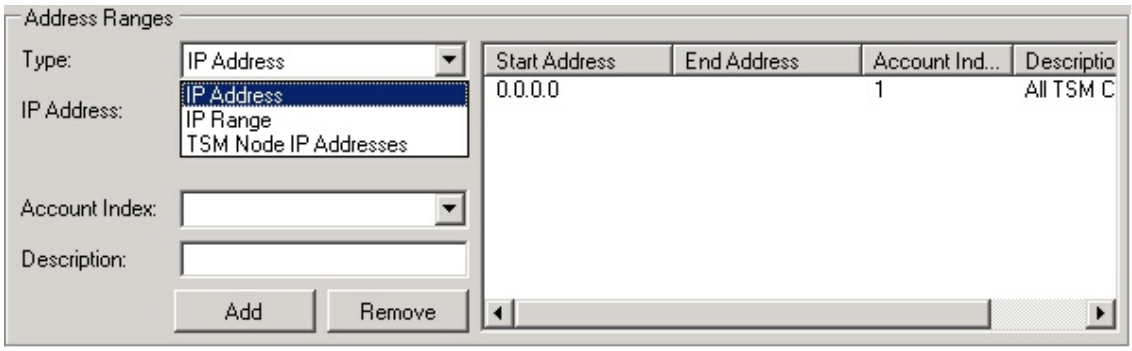
Steps for adding WMI configurations:

1. First add accounts credentials:
   Type in a domain name, user name and password.
   Click Add
   If this is the default choose the account and then click Set Default



2. Next add a address range:
   Select one of the following:
      IP Address
      IP Range or
      All TSM client node IP addresses
   Choose the account index to be used which was added in step 1



The WMI scan is scheduled from the Schedules tab, the type named 'OTHER' with database name VM_WMI.
This process is by default scheduled for the first Saturday morning following the installation of Reporter.

The process will detect and scan WMI information which in then inserted into Reporter database.
Using the collected information reports can be generated about CPU cores, filespaces and other sources of information.

If a Windows system is detected without a configured TSM client this system is then added to the list as ungrouped node.

5.2.4 E-mail Configuration

E-mail features in PLCS Reporter are currently used for a license key request and operational reporting.

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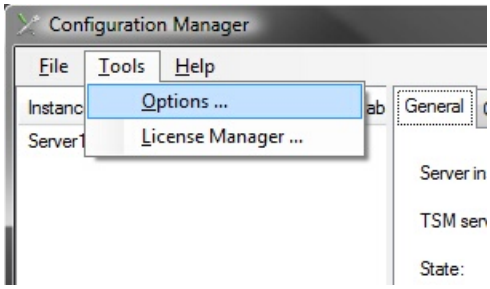
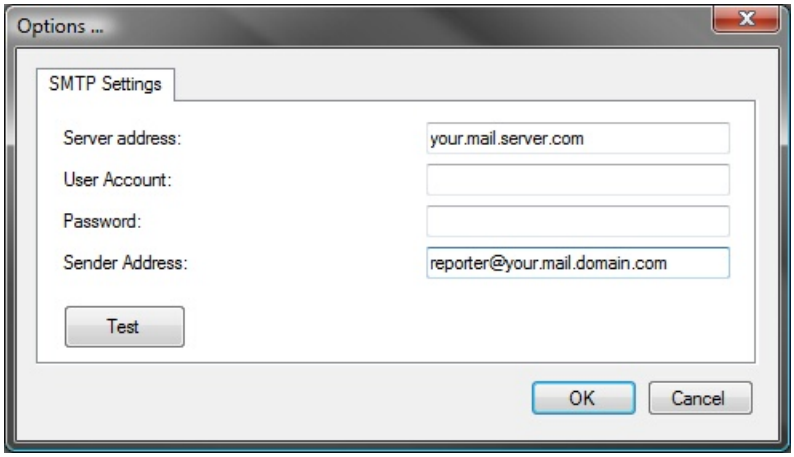
To configure the E-mail facility select from the drop down menu in the Configuration Manager, Tools, Options.



Configuration Manager, Tools menu, Options item selected

In the Options dialog on the SMTP tab fill in SMTP server address and sender address. In case your SMTP server requires validation also add user account and password.



Options dialog window for E-mail settings

Click on the Test button to send a test e-mail to the senders address.
Select 'OK' button to confirm the settings.

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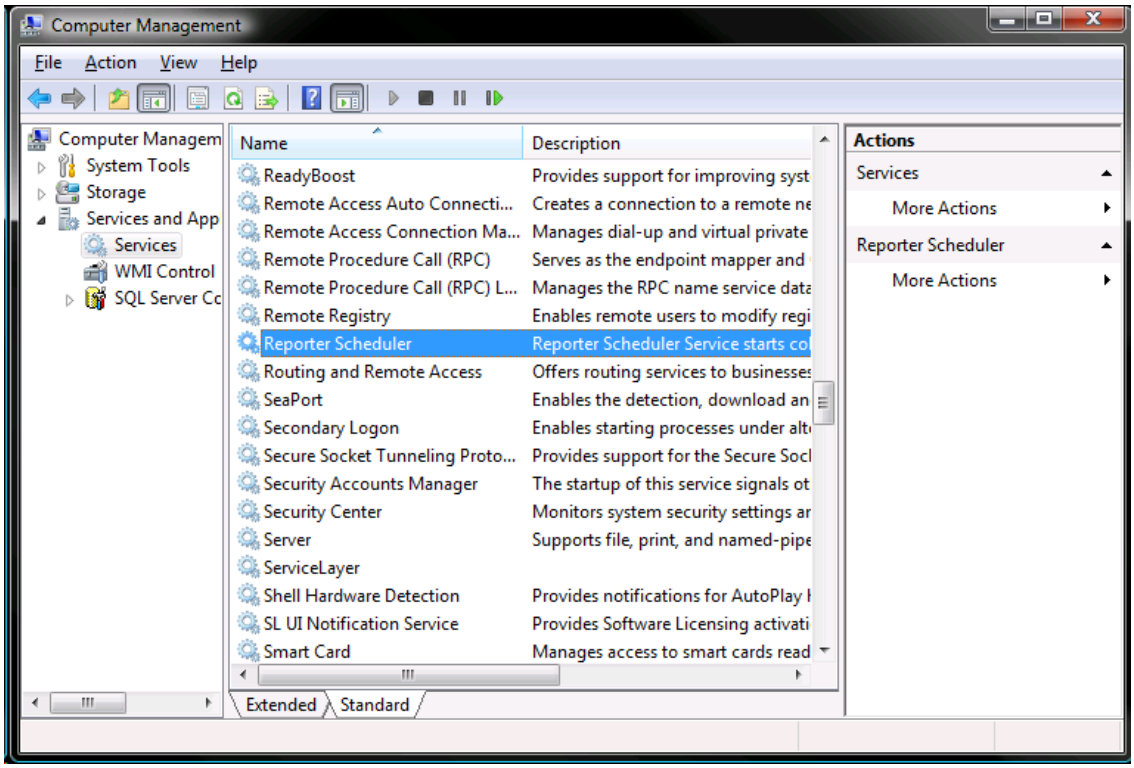
5.3 Reporter Scheduler

The Reporter Scheduler program is a scheduler for starting the data colloctor agent command line, generating reports, generating HTML report, emailing reports, collecting information for the enterprise database and scheduling the VM and WMI agent.
The Reporter Collector is a Windows service application and cannot be started directly from the command line (it can be started with: net start "Reporter Scheduler"). The program is configured by the Configuration Manager and is managed by the Windows Service interface.

To start or stop the Reporter Collector you can use the Configuration Manager.
The Configuration Manager can be found under the Start Menu, All Programs, PLCS Reporter, Configuration Manager.

Select the Scheduler tab in the Configuration Manager, the Reporter Scheduler is controlled by the buttons in this tab.
The Reporter Scheduler can also be started and stopped from the systems Computer Management interface.



Windows Computer Management interface, Services management

Select the Scheduler service. Click stop to stop the Scheduler service. Click start to start the Scheduler service.

For problems and troubleshooting the Collector refer to the section Troubleshooting Reporter Scheduler.

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5.4 Reporter Agent

The Reporter Agent is a Windows console program that connects to the TSM server by utilizing the TSM dsmadmc and queries the TSM server. The meta data is then inserted into the 'local' database using a ODBC driver.

When the Reporter Agent program is run for the first time it will create a database and recreate all TSM tables and fill them with the TSM meta data.
Some of the tables are not processed by the Agent (e.g. ARCHIVES, BACKUPS, CONTENTS tables).

This program can also be started manually from the command line (e.g. AgentC.exe -k server1)

Syntax: AgentC.exe

-k *serverinstance*	Server instance name (e.g. server1)
-f	(Optional) Output to file instead of screen

5.5 Client Agent

The Client Agent is a Windows console program that connects to the Windows systems on the LAN and VMWare servers to extract information and insert this into the database.

When the Client Agent program is run for the first time it will create a database and create all necessary tables and fill them with the Windows Management Instrumentation (WMI) and VMWare information.

This program can also be started manually from the command line (e.g. ClientAgent.exe /vm /wmi /logfile)

Syntax: ClientAgent.exe

/vm	Perform Windows Management Instrumentation server data collection
/wmi	Perform VMWare server data collection
/logfile	(Optional) Output to file instead of screen

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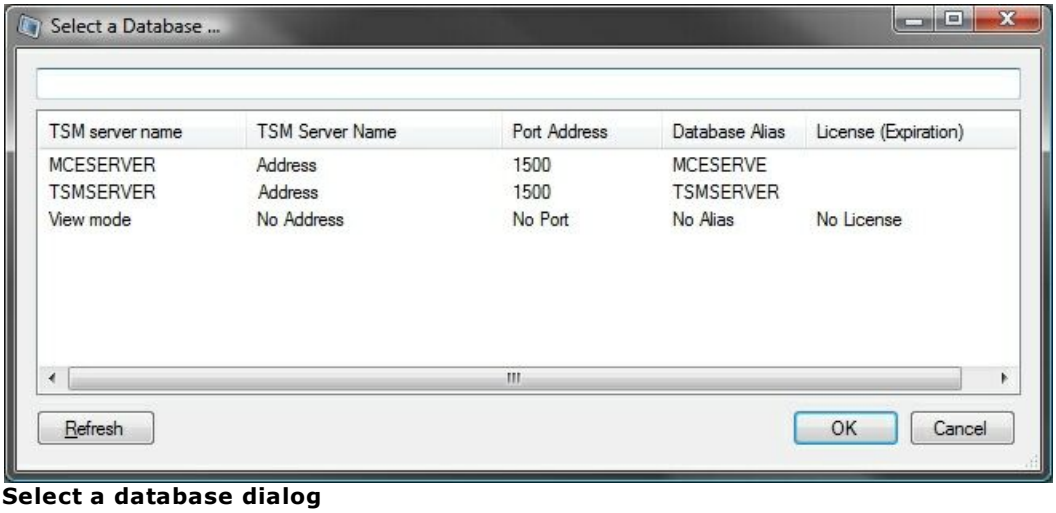
Part VI

6 Reporter GUI

In this part PLCS Reporter graphical user interface (GUI) and all its functions and menu's are explained. Before you get started make sure that you have a valid License File and that the Reporter Agent has run.

Start Reporter

To start PLCS Reporter, select from either the desktop the Reporter icon or from Start Menu, All Programs, PLCS Reporter, Reporter. When the Reporter has started, you are prompted to select a TSM server database.



Select a database dialog

Select a database and click 'OK'. Now the main user interface opens. On the left side of the window you can see a tab named Databases. This is a sliding tab, holding the mouse pointer for a second the sliding window will slide open, which allows you to select another TSM server database.

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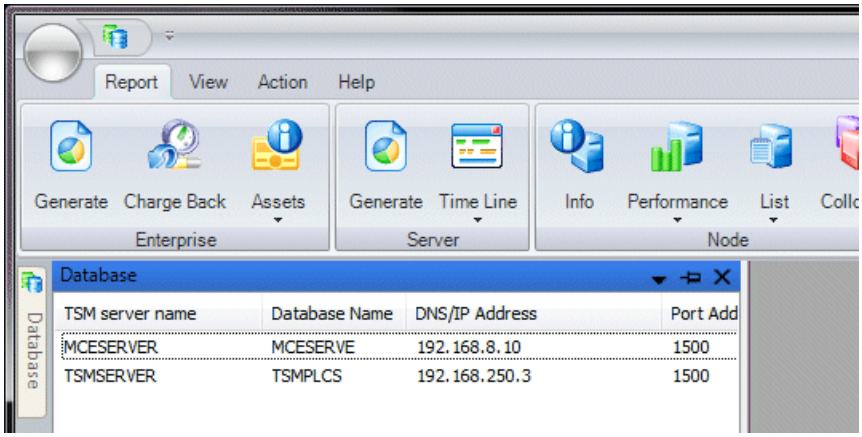
Selecting Database

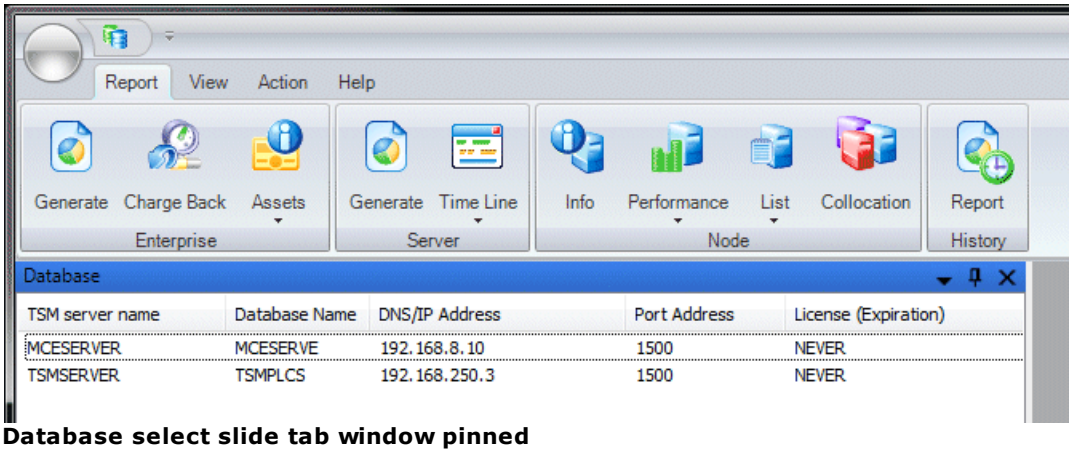
To select another database, mouse the mouse over the database tab. To select double click the database or right mouse click and select click Select Database.



Select a database from the slide tab window

Database Slide Window

In case the sliding window was closed, use the Database icon on the ribbon (menu bar) to open the Database select window.
To auto hide the slide window click on the pin to make the window hide.



Database select slide tab window pinned

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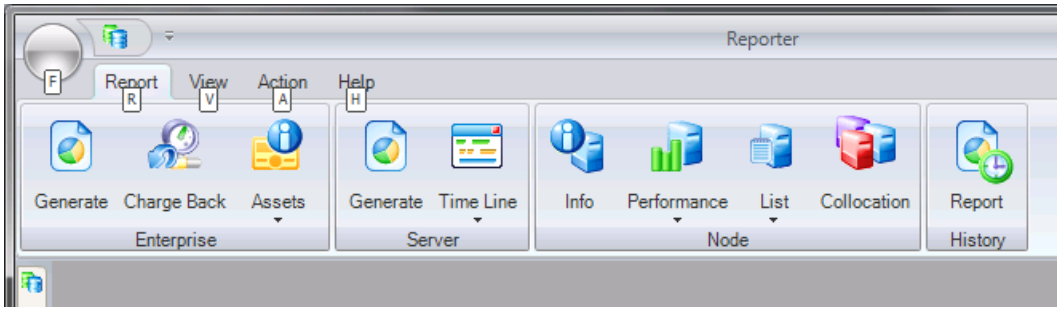
6.1 Ribbon

The ribbon tabs in PLCS Reporter are grouped by relevant commands.
Each ribbon item will be discussed in detail.

Most ribbon items are disabled when using the view mode of PLCS Reporter.

Report Ribbon Groups



Ribbon with Report tab showing with keyboard shortcuts

The Report item buttons have the following functions available:

- Database, show the side bar (if hidden) which allows you to select another TSM database (Quick Access Toolbar)
- Enterprise Report Generate, allows you to generate enterprise reports for a single or group TSM servers
- Enterprise Charge Back, allows you to calculate a charge back scheme for a single or group TSM servers
- Enterprise Assets, allows you to manage your license assets for a single or group TSM servers
- Generate Server, Generate Report, allows you to generate a new report of the selected TSM server
- Server Timeline, a graphical overview in time of all TSM activity
- Node Info, Node Information, allows you to get drill down information of a TSM client node
- Node Perf., Node Performance, show a list of last X days of backups performance information
- Node List, Node List, shows a list of all TSM client nodes (for selected TSM server) with average backup, occupancy, schedule, backup copy group information.
- Node Collocation, Node Collocation, allows you to easily create collocation groups and script
- History, Report History, allows you to view previously generated reports

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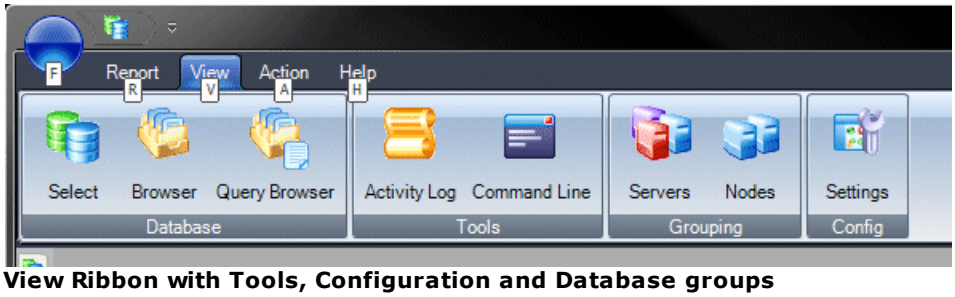
View Ribbon Groups

The View ribbon groups of PLCS Reporter are the Database, Tools and Configuration groups.



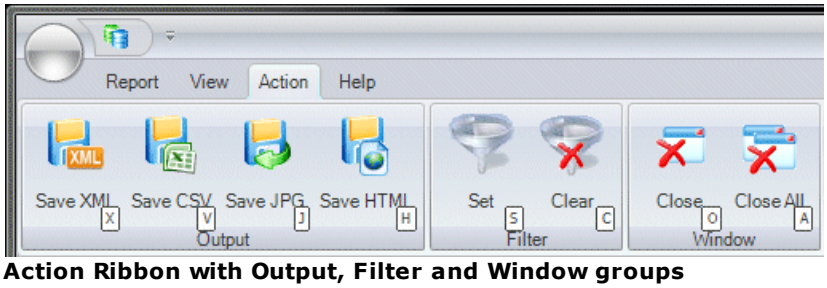
View Ribbon with Tools, Configuration and Database groups

The View item buttons have the following functions available:

- Database Select, opens sidebar select database (if hidden)
- Database Browse, opens a window that allows you to browse the local TSM database copy
- Tools Activity Log, opens a window with the TSM activity log
- Tools Command Line, opens a window with a smart TSM command line
- Servers Grouping, opens a dialog that allows you to create TSM servers groups (In Reporter)
- Nodes Grouping, opens a dialog that allows you to create TSM node groups (On the TSM server)
- Configuration Settings, opens a window that allows you to configure PLCS Reporter program settings

Action Ribbon Groups

The Action ribbon groups of PLCS Reporter are the Output, Filter and Window groups. The Output group with its output function can be used with almost all the presentation windows, like Report Viewer and Node Performance.



Action Ribbon with Output, Filter and Window groups

The Filter group allows you to filter content of a data grid.
The Window group has two items which allow you to Close a open (child) window or Close All open windows.

The Output group has the following functions available:

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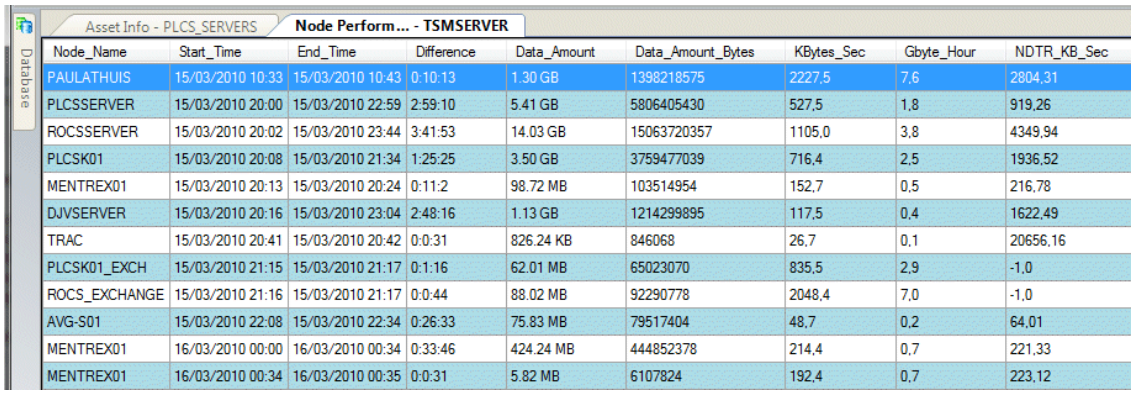
- Save XML, saves a data grid into a XML file
- Save CSV, saves a data grid into a comma-separated values (CSV) file, can be opened in Excel
- JPG, saves a graph to JPEG file
- Filter Set, allows you to filter the content of a data grid (e.g. Activity Log, Node List, Node Performance, Node Collocation)
- Filter Clear, allows you to reset/clear the filter.
- Window Close and Close All, allow you to Close a open (child) window or Close All open windows



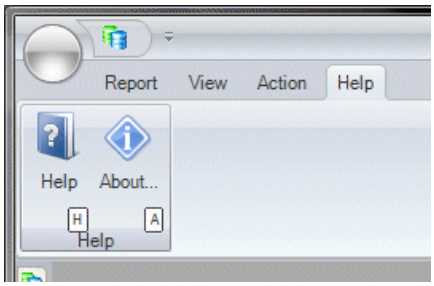
Node_Name	Start_Time	End_Time	Difference	Data_Amount	Data_Amount_Bytes	KBytes_Sec	Gbyte_Hour	NDTR_KB_Sec
PAULATHUIS	15/03/2010 10:33	15/03/2010 10:43	0:10:13	1.30 GB	1398218575	2227,5	7,6	2804,31
PLCSSERVER	15/03/2010 20:00	15/03/2010 22:59	2:59:10	5.41 GB	5806405430	527,5	1,8	919,26
ROCSSERVER	15/03/2010 20:02	15/03/2010 23:44	3:41:53	14.03 GB	15063720357	1105,0	3,8	4349,94
PLCSK01	15/03/2010 20:08	15/03/2010 21:34	1:25:25	3.50 GB	3759477039	716,4	2,5	1936,52
MENTREX01	15/03/2010 20:13	15/03/2010 20:24	0:11:2	98.72 MB	103514954	152,7	0,5	216,78
DJVSERVER	15/03/2010 20:16	15/03/2010 23:04	2:48:16	1.13 GB	1214299895	117,5	0,4	1622,49
TRAC	15/03/2010 20:41	15/03/2010 20:42	0:0:31	826.24 KB	846068	26,7	0,1	20656,16
PLCSK01_EXCH	15/03/2010 21:15	15/03/2010 21:17	0:1:16	62.01 MB	65023070	835,5	2,9	-1,0
ROCS_EXCHANGE	15/03/2010 21:16	15/03/2010 21:17	0:0:44	88.02 MB	92290778	2048,4	7,0	-1,0
AVG-S01	15/03/2010 22:08	15/03/2010 22:34	0:26:33	75.83 MB	79517404	48,7	0,2	64,01
MENTREX01	16/03/2010 00:00	16/03/2010 00:34	0:33:46	424.24 MB	444852378	214,4	0,7	221,33
MENTREX01	16/03/2010 00:34	16/03/2010 00:35	0:0:31	5.82 MB	6107824	192,4	0,7	223,12

Sample of a data grid

Help Ribbon Groups

The Help ribbon group contains the button items for:

- Help, opens a internet browser with online help
- About, opens a dialog with the version number



Sample of Help tab

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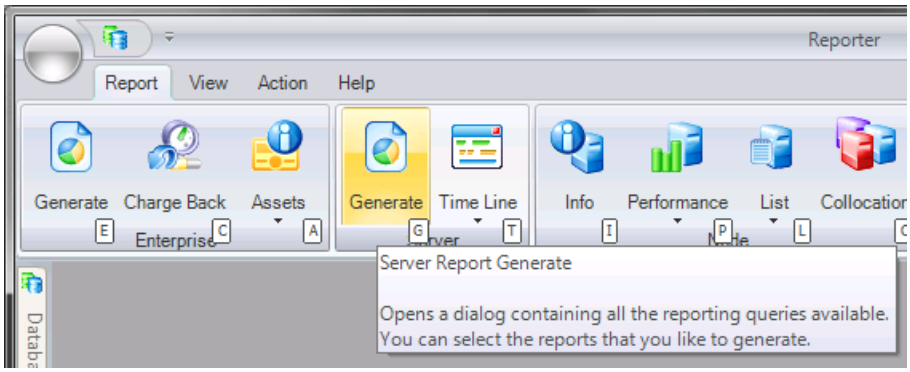
6.2 Generate Report

PLCS Reporter has many functions, but the most important are Enterprise- and Server Report Generation.
The amount of reports that PLCS Reporter can generate are plentiful.

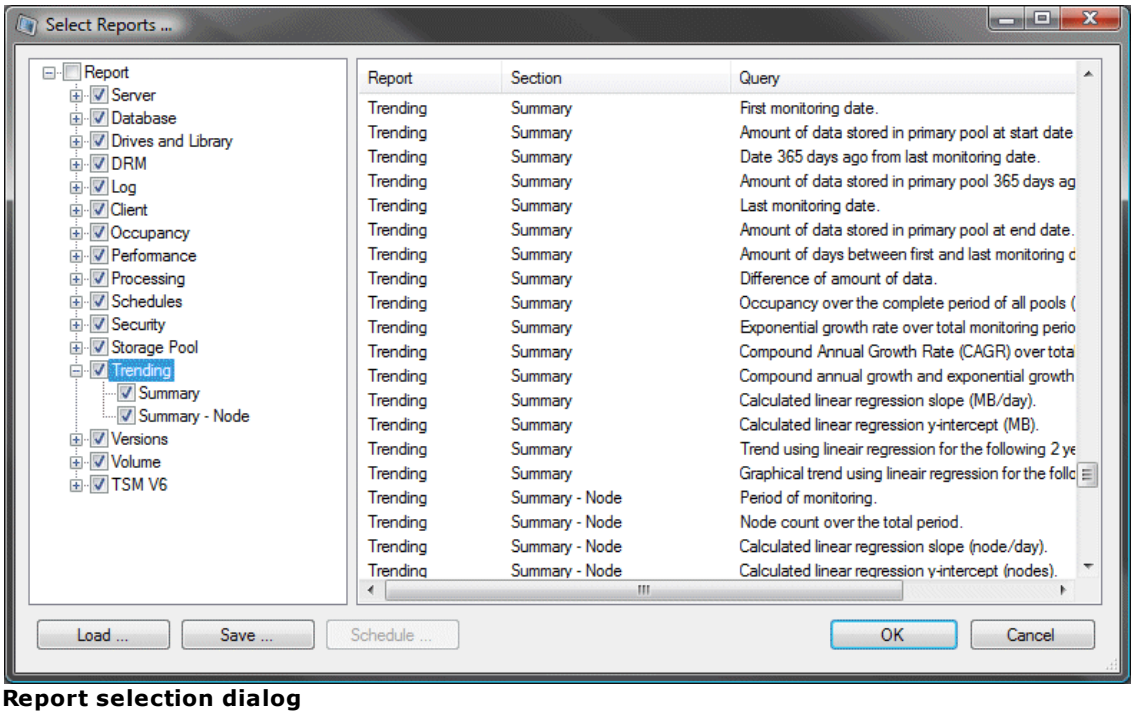
To generate a Enterprise Report select on the ribbon menu Report tab, Enterprise Reports Generate or shortcut keys ALT, R, E.
First you will be prompted to select a TSM server or group of TSM servers (How to create a TSM server group).

To generate a Server Report select on the ribbon menu Report tab, Server Reports Generate or shortcut keys ALT, R, G.



Server Report Generate selected and shortcut keys showing

The Select Report dialog will open and you can make a selection of the reports you would like to be generated by clicking on the check boxes in the left pane.
The list window on the right will display the selected reports.


Select Reports ...
Report
Server
Database
Drives and Library
DRM
Log
Client
Occupancy
Performance
Processing
Schedules
Security
Storage Pool
Trending
Summary
Summary - Node
Versions
Volume
TSM V6
Report
Section
Query
Trending Summary First monitoring date.
Trending Summary Amount of data stored in primary pool at start date
Trending Summary Date 365 days ago from last monitoring date.
Trending Summary Amount of data stored in primary pool 365 days ag
Trending Summary Last monitoring date.
Trending Summary Amount of data stored in primary pool at end date.
Trending Summary Amount of days between first and last monitoring c
Trending Summary Difference of amount of data.
Trending Summary Occupancy over the complete period of all pools (
Trending Summary Exponential growth rate over total monitoring perio
Trending Summary Compound Annual Growth Rate (CAGR) over tota
Trending Summary Compound annual growth and exponential growth
Trending Summary Calculated linear regression slope (MB/day).
Trending Summary Calculated linear regression y-intercept (MB).
Trending Summary Trend using lineair regression for the following 2 ye
Trending Summary Graphical trend using lineair regression for the follc
Trending Summary - Node Period of monitoring.
Trending Summary - Node Node count over the total period.
Trending Summary - Node Calculated linear regression slope (node/day).
Trending Summary - Node Calculated linear regression y-intercept (nodes).
Load ...
Save ...
Schedule ...
OK
Cancel

Report selection dialog

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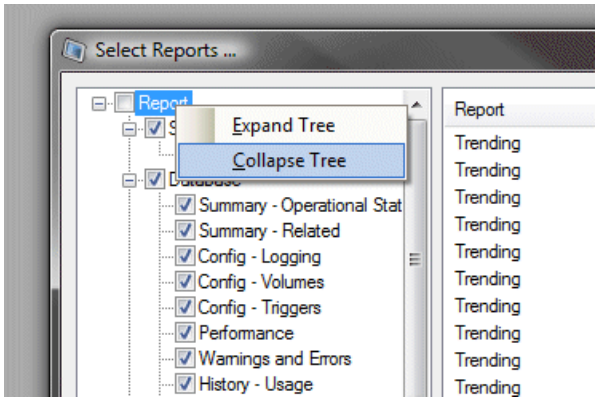
The tree window can be expanded or collapsed by clicking on the plus/minus signs. Right mouse click anywhere on the context menu to Expand/Collapse the whole tree.



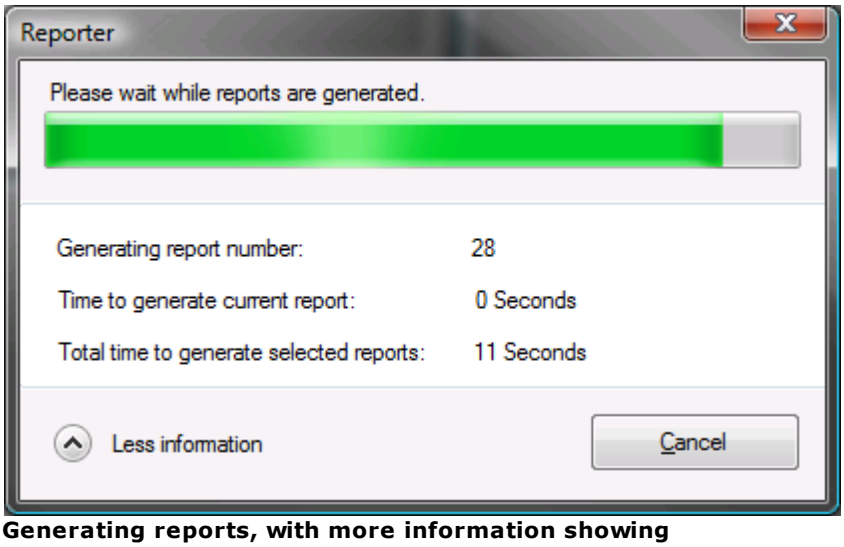
Right mouse context menu

Save or Load Report Selection

To Save a currently selected report click on the Save button and name the selected report. To recall a saved report, click on the Load button and select the report file (with extension .RPT).

Start Report Generation

After you have made your selection select 'OK' to start report generation.
The following dialog is shown with a progress bar (100% does not mean generation is finished).



Generating reports, with more information showing

When the reports have been generated the Report Viewer window opens.

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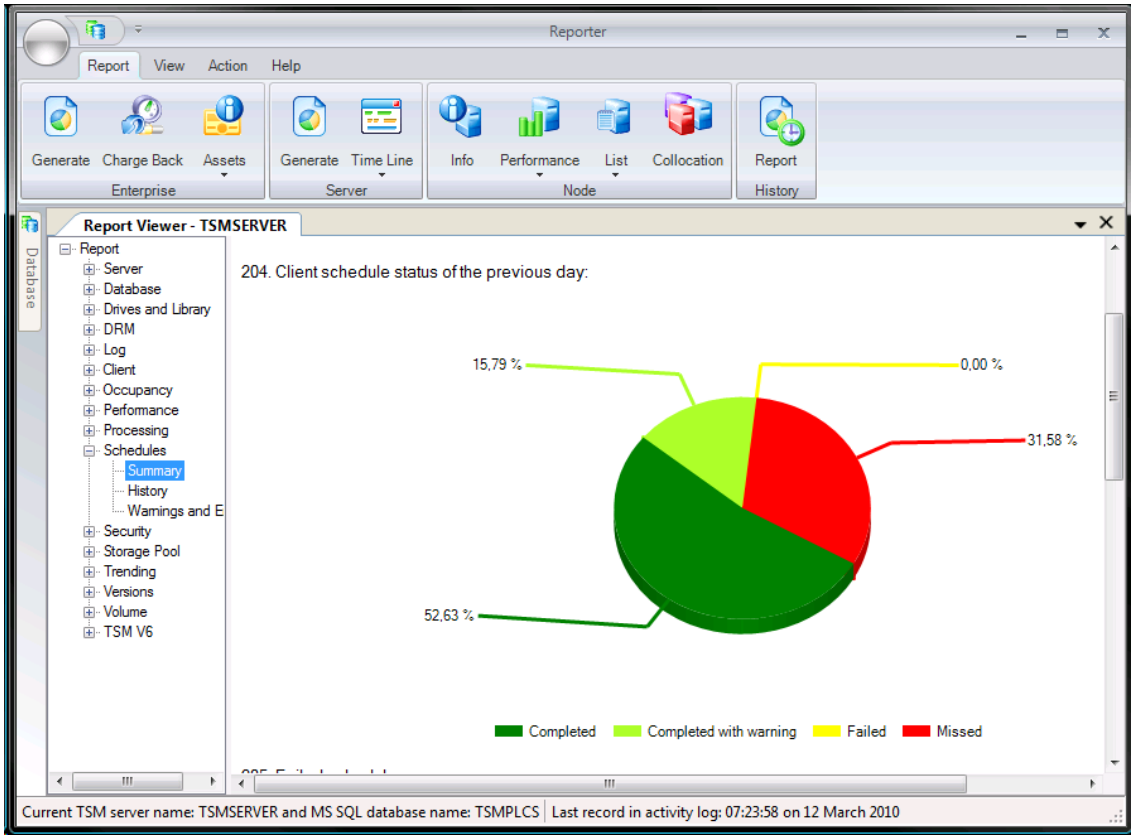
6.2.1 Report Viewer

The Report Viewer is the interface to view and print a report generated by PLCS Reporter. This window opens after you use the Enterprise or Server Generate function.



Sample screen of the PLCS Reporter interface with report viewer window

This picture shows an example of a report.

Selecting Report Section

Selecting a report section can be done on the left side of the report viewer window, a tree shows the selectable sections of the report.
Click on the plus signs to unfold the tree.
Click on the subsection to select a report, the selected report will be loaded on the right side.
Selecting the root (Report label) will not load the report, as this is a program restriction.

Report Sections

To present the information generated by the report generator the report viewer utilizes 3 types of display components.
The three types of presentation in a report are:

- Text with single answer to a database query
- Data grid with multiple (columns and rows) answers to a database query

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- Chart with multiple answers to a database query (Charts can be e.g. Pie, Line, Bar, Spline)

6.2.2 Menus

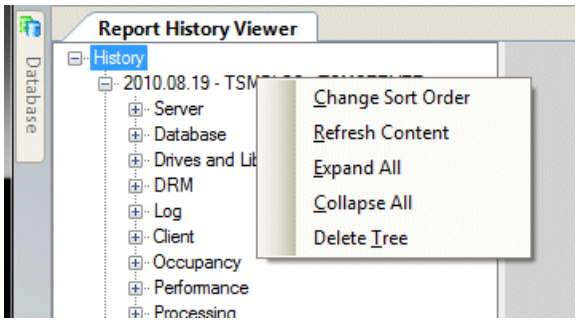
The following menu items on the ribbon can be used with the report viewer.

From the output ribbon the print menu can be used to print to a printer or a Adobe Portable Document Format (PDF) file.

Report Tree Context Menu

Right mouse click on the report viewer tree opens the context menu with the following functions:

- Change Sort Order, ascending or descending sort order of the tree view
- Refresh Content, will reload and refresh the tree view
- Expand All, will expand the complete tree in full
- Collapse All, will collapse the tree and expand it from the root
- Delete Tree, will delete the selected tree branch (also removes the files)



Right mouse context menu

Report Sections Context Menu

Right click on the report. This opens the context menu with the following functions:

- Copy, will copy content into clipboard (text, data grid and charts)
- Show last number of days (charts only) zoom in function,
  to zoom out in a chart click on the round icon on the left bottom of the chart.

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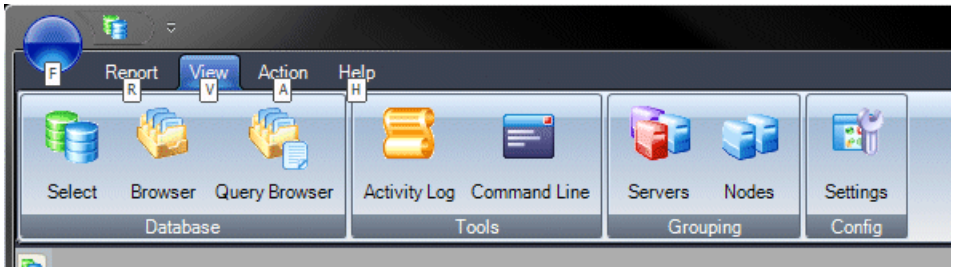
6.2.3 Grouping

There are two grouping options, one for creating groups of TSM servers and one for TSM nodes.
These server and node groups are not created on the TSM server, only on the MSSQL database.

Servers Grouping

To create TSM server groups click on the Servers icon on the View Ribbon Tab.



View Ribbon Tab with Grouping selected

The Grouping dialog window, allows you to group several TSM servers into a group for Enterprise reporting.
It is possible to create as many groups as needed, and a TSM server can also be in multiple groups.

The procedure to create a servers group is as follows:

- Click the Servers grouping icon on the view tab.
- Type or select a group on the right top selection box.
- Then add TSM servers on the left side that you like to have in the group by either double click or Add button.
- You may add a group description on the bottom right.
- Then click Save, the group is saved and dialog window is cleared.

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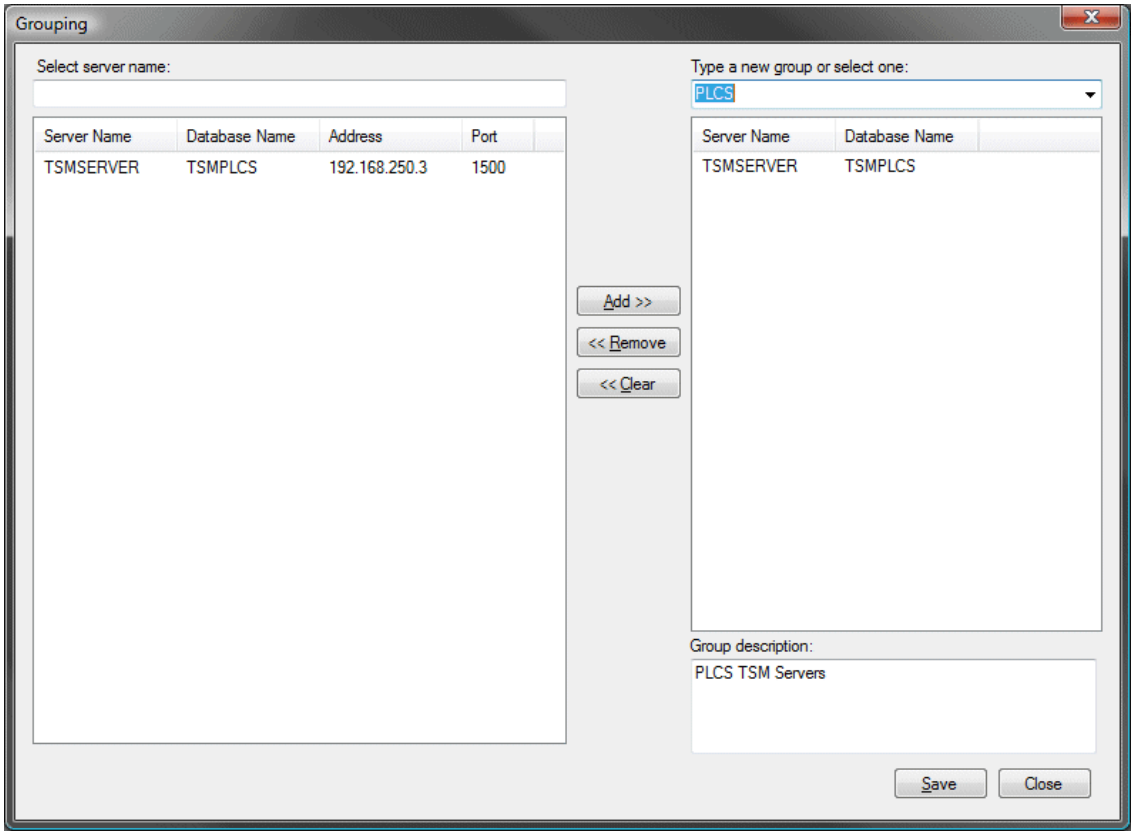

Sample of Servers grouping dialog window

Nodes Grouping

To create TSM node groups click on the Nodes icon on the View Ribbon Tab.

These node groups will then be created only locally on the Microsoft SQL database. It is possible to create as many groups as needed, and a TSM node can also be in multiple groups.

The procedure to create a nodes group is as follows:

- Click the Nodes grouping icon on the view tab
- Type or select a group on the right top selection box
- Then add TSM nodes on the left side that you like to have in the group by either double click or Add button
- You may add a group description on the bottom right
- Then click OK, the group is created on the TSM server and the dialog window will close

Note: To create a group of nodes that covers multiple TSM server, create a group with the same name on each of the TSM server.

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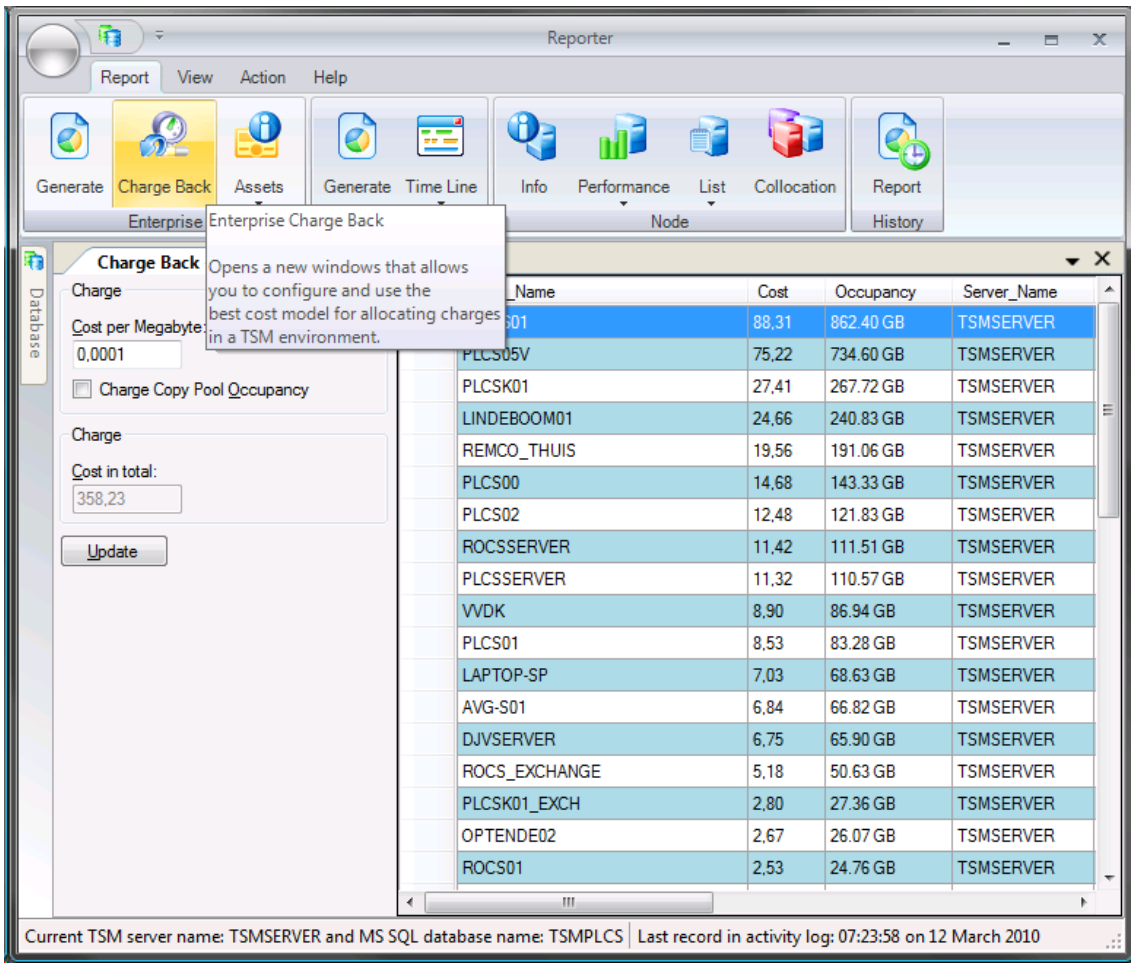
6.3 Charge Back

Charge Back item on the ribbon under the Report tab, Enterprise section, opens a window with a groups of TSM servers.

In the Charge Back window you may change the cost per megabyte from the default 0,0001 cent per megabyte. Charge back allows you to charge for copy pool occupancy. To update click on the update button, on the data grid you will see the total cost per node.



Sample Charge Back window (simple version)

In the Charge Back window it is possible to print, save as XML and CSV and filter the content, by selecting the action ribbon in Reporter.

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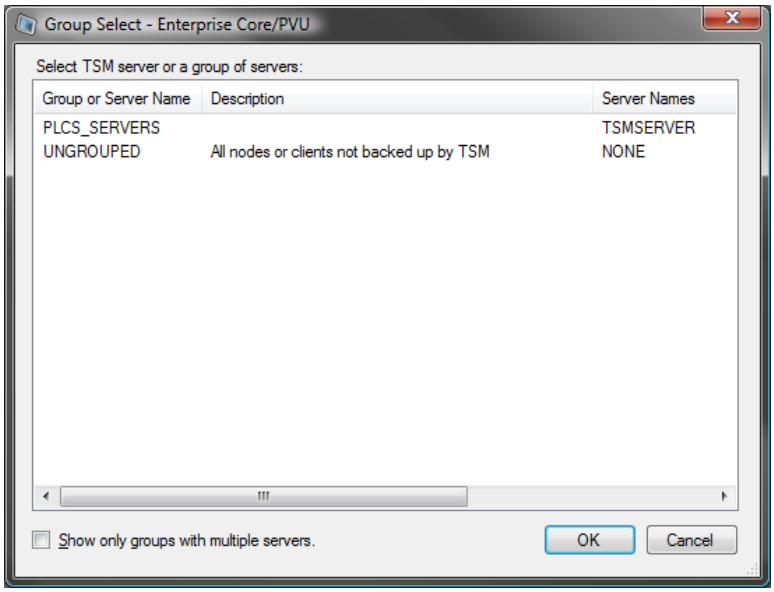
6.4 Asset Node and CPU

Enterprise Asset on the ribbon under the Report tab, Enterprise section, opens a window with CPU asset info of a groups of TSM servers.

The CPU asset info is configured in the Configuration Manager, the VM Settings tab for VMware servers or a Virtual Center, the WMI Settings tab can be used to add IP addresses and ranges for Windows servers. Then the collection of data needs to run, this can also be done in the Configuration Manager in the Schedules tab and running the WMI_VM schedule (Other).

To view the information click on the Asset button and the following group selection dialog opens:



If there are no groups available create a Enterprise Group first. Select a group of TSM server clients for viewing and click OK.

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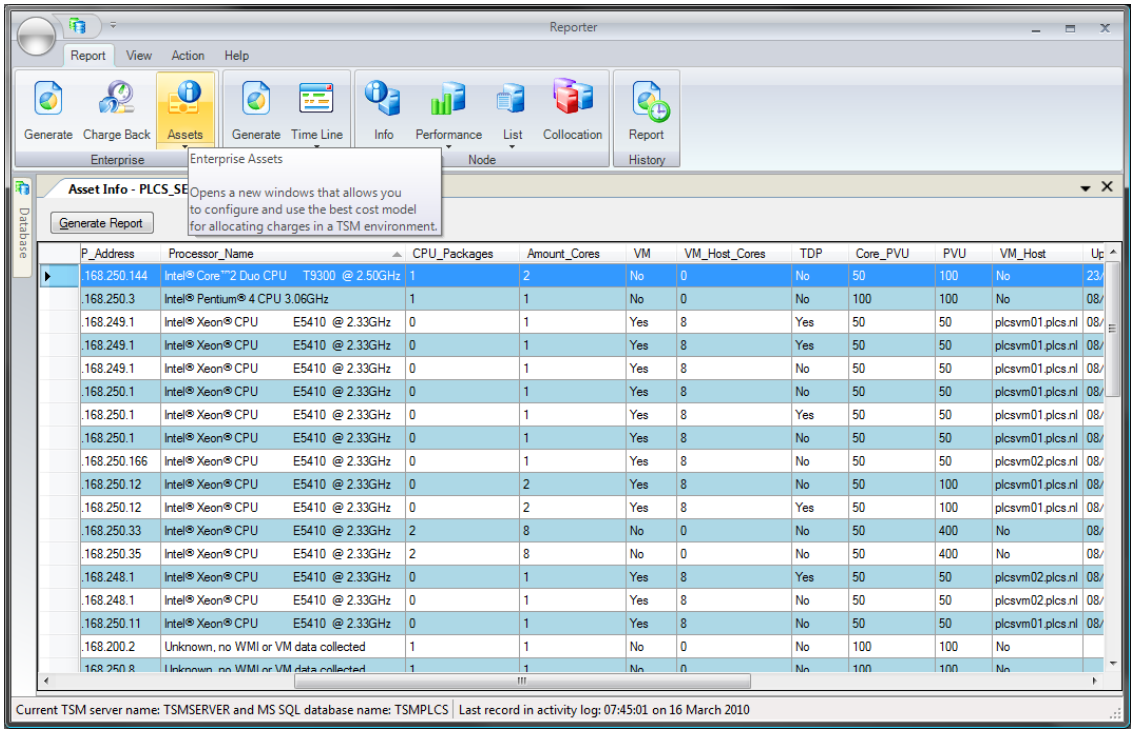


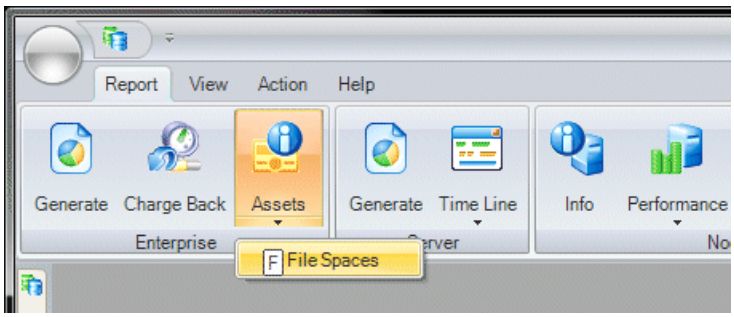
Sample Asset window with processor, CPU, Core and PVU information.

Notes:

- In case there is no processor information the Client Agent might not have run yet. It is scheduled for the first Saturday after installation of PLCS Reporter.
- The Client Agent can also be manually started (refer to section Client Agent)
- Processor information might be missing because of failure to communicate with the client. Please refer to section WMI information.

6.4.1 Asset and File Spaces

Enterprise Asset File Spaces on the ribbon under the Report tab, Enterprise section, opens a window with file space asset information of a groups of TSM servers.



Click on the Asset button and the group selection dialog opens, select a TSM server group from the list and click OK.
The file space and local drive match will now open a window and start matching the TSM file spaces with the local drives.

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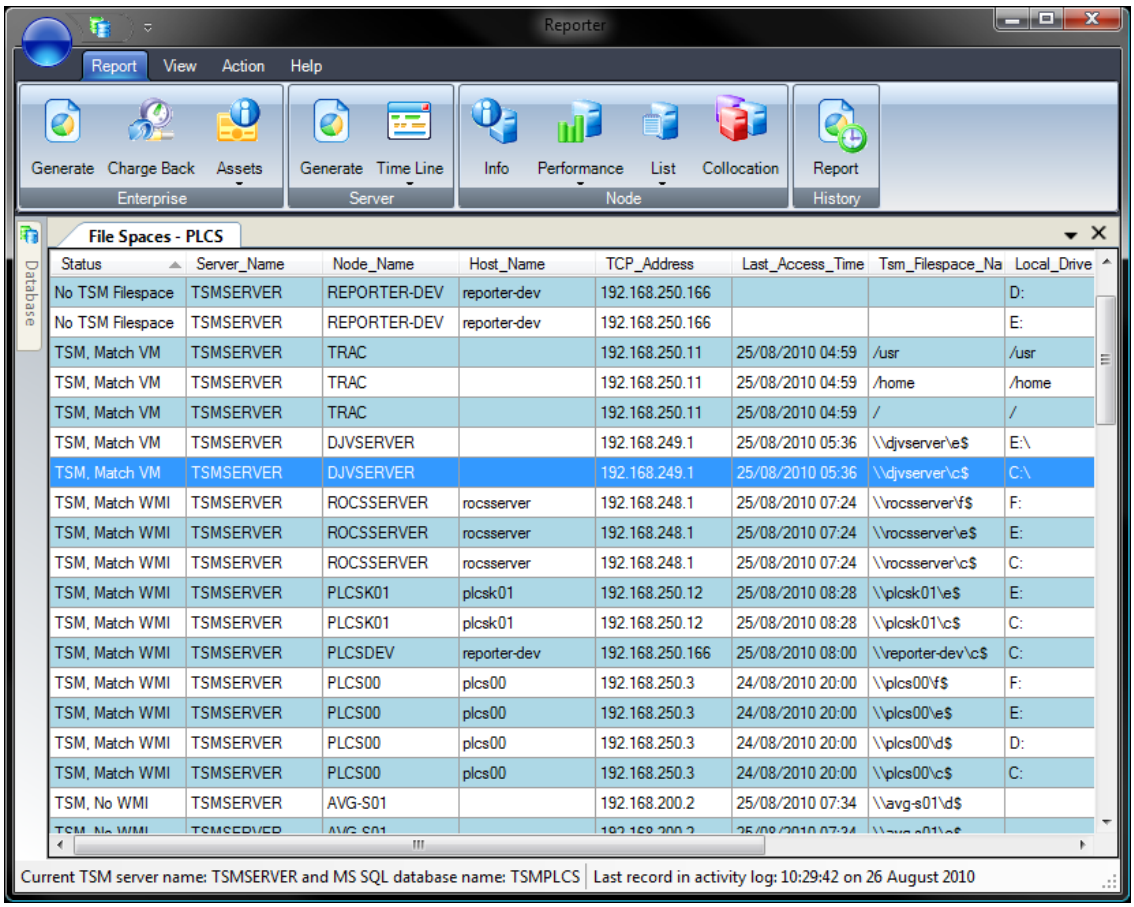
Matching is done by using the WMI and VMware server information in the Reporter database.


Reporter
Report
View
Action
Help
Generate
Charge Back
Assets
Enterprise
Generate
Time Line
Server
Info
Performance
List
Collocation
Node
Report
History
Database
File Spaces - PLCS
Status
Server_Name
Node_Name
Host_Name
TCP_Address
Last_Access_Time
Tsm_Filespace_Na
Local_Drive
No TSM Filespace TSMSERVER REPORTER-DEV reporter-dev 192.168.250.166 D:
No TSM Filespace TSMSERVER REPORTER-DEV reporter-dev 192.168.250.166 E:
TSM, Match VM TSMSERVER TRAC 192.168.250.11 25/08/2010 04:59 /usr /usr
TSM, Match VM TSMSERVER TRAC 192.168.250.11 25/08/2010 04:59 /home /home
TSM, Match VM TSMSERVER TRAC 192.168.250.11 25/08/2010 04:59 / /
TSM, Match VM TSMSERVER DJVSERVER 192.168.249.1 25/08/2010 05:36 \\djvserver\e$ E:\
TSM, Match VM TSMSERVER DJVSERVER 192.168.249.1 25/08/2010 05:36 \\djvserver\c$ C:\
TSM, Match WMI TSMSERVER ROCSSERVER rocsserver 192.168.248.1 25/08/2010 07:24 \\rocsserver\f$ F:
TSM, Match WMI TSMSERVER ROCSSERVER rocsserver 192.168.248.1 25/08/2010 07:24 \\rocsserver\e$ E:
TSM, Match WMI TSMSERVER ROCSSERVER rocsserver 192.168.248.1 25/08/2010 07:24 \\rocsserver\c$ C:
TSM, Match WMI TSMSERVER PLCSK01 plcsk01 192.168.250.12 25/08/2010 08:28 \\plcsk01\e$ E:
TSM, Match WMI TSMSERVER PLCSK01 plcsk01 192.168.250.12 25/08/2010 08:28 \\plcsk01\c$ C:
TSM, Match WMI TSMSERVER PLCSDEV reporter-dev 192.168.250.166 25/08/2010 08:00 \\reporter-dev\c$ C:
TSM, Match WMI TSMSERVER PLCS00 plcs00 192.168.250.3 24/08/2010 20:00 \\plcs00\f$ F:
TSM, Match WMI TSMSERVER PLCS00 plcs00 192.168.250.3 24/08/2010 20:00 \\plcs00\e$ E:
TSM, Match WMI TSMSERVER PLCS00 plcs00 192.168.250.3 24/08/2010 20:00 \\plcs00\d$ D:
TSM, Match WMI TSMSERVER PLCS00 plcs00 192.168.250.3 24/08/2010 20:00 \\plcs00\c$ C:
TSM, No WMI TSMSERVER AVG-S01 192.168.200.2 25/08/2010 07:34 \\avg-s01\d$
Current TSM server name: TSMSERVER and MS SQL database name: TSMPLCS
Last record in activity log: 10:29:42 on 26 August 2010

Sample File Space asset match using WMI, TSM File Spaces and VMware server information

Notes:

- API client nodes are not matched, because file spaces cannot be matched to a local drive.
- File spaces can only be matched if the Client Agent has run, performing the WMI or VM scan.
- In case file space asset detects a local drive with out a TSM file space it is marked in status as 'No TSM File space', verify the TSM 'domain' statement in a client option file whether it reflects the correct number of disks to be backed up (or use the all-local option).

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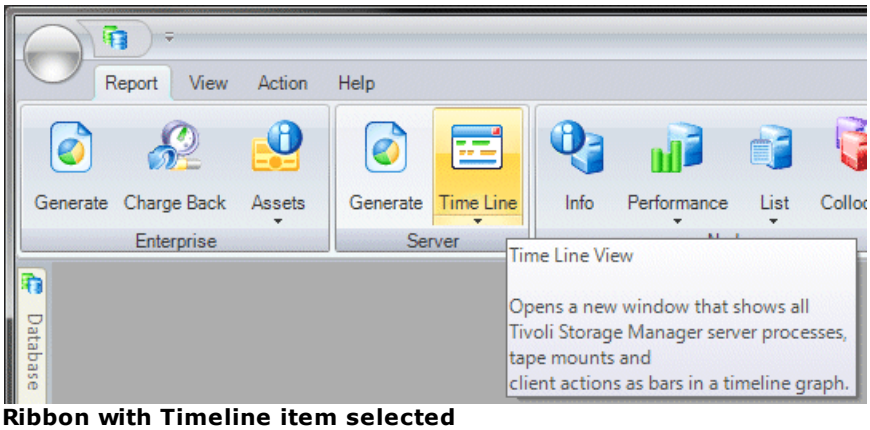
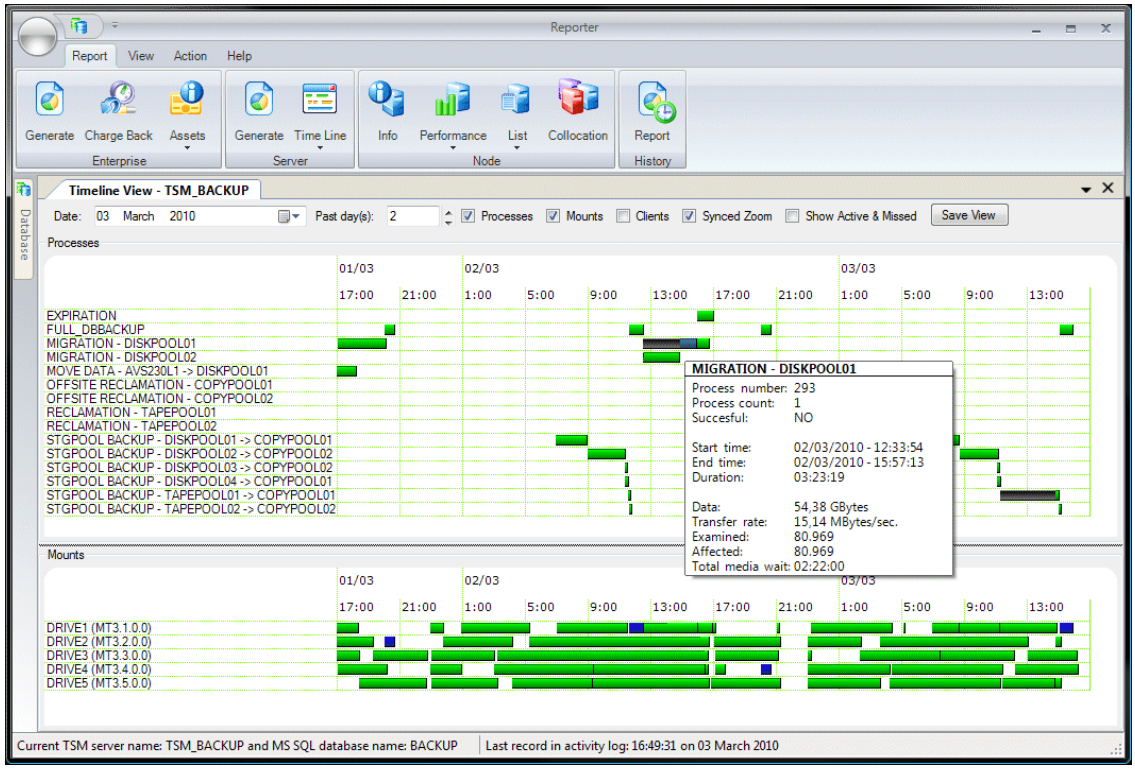
6.5 Timeline

The Timeline window, gives you a graphical overview in time of all TSM activity, e.g. processes, drive tape mounts and client sessions.
To open the Timeline window select the Timeline icon on the ribbon under the Report tab, Server group.



Ribbon with Timeline item selected

This Timeline window shows 24 hours of server processing, tape mounts and client activity in a Gantt style chart.
It allows you to go back in time or show multiple days of processing in the past, up to 30 days in one view.



Timeline window with process information popup

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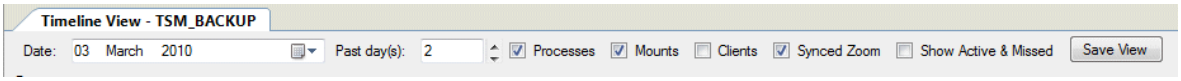
6.5.1 Timeline View

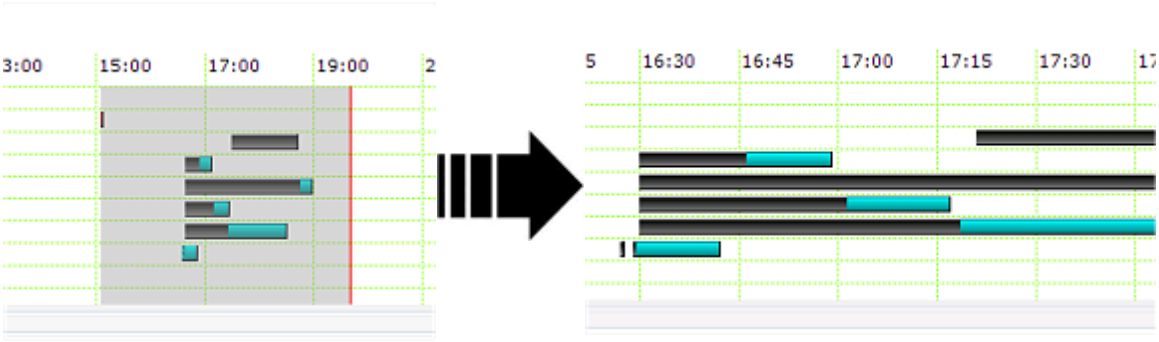
To change the date select the calendar drop down on the top left of the window and select a date. The graph will update to that date.



Timeline window options

Viewing multiple days, use the 'Past days' and press the up/down to increase/decrease the amount of days on the screen, you can view up to 31 days.
Enabling views of Processes, Mounts or Clients click on the check boxes.
Synced zoom option will allow you to simultaneously zoom all open charts in the Timeline window.
Show Active and Missed will display the currently active processes, mounts, client sessions and the missed client schedules.
The Save View button will store the selected check boxes, for when opening a new Timeline window.

Each chart has the ability to zoom into a smaller time slice, hold the left mouse button and drag it to the end point in the chart, then release the mouse button. The graph will show a zoomed view. To zoom out, click on the left upper corner of the chart.



Zoom into a time section **Zoomed section**

The Synced Zoom (checkbox) option gives you the ability to zoom into all charts at the same time into the same time section.

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Bar Information

The bars on the charts are color coded, each color has a different meaning.

Chart type / Activity	Color	Meaning
Processes	Black	Tape mount delay
	Green	Successful process
	Red	Unsuccessful process
	Purple	Process match with tape mount
Mounts	Green	Normal tape mount
	Blue	Database backup tape mount
	Purple	Tape mount match with process or session
Clients	Black	Tape mount delay
	Green	Successful backup/restore/archive/retrieve
	Green shade (darker)	Darker means faster
	Yellow	Failed (return code 4, 8) or Running
	Red	Failed (return code 12) or Missed
	Purple	Session match with tape mount

With the mouse pointer you can acquire more information from the bars, hold the mouse pointer on top of the bar (it will discolor) then a pop-up will show you information about the process, mount or client activity.

Chart type	Information
Processes	Activity
	Process number and count
	Successful
	Start, end time and duration
	Amount of data
	Transfer rate
	Files examined and affected
	Total media mount wait
Mounts	Drive name
	Successful
	Start, end time and duration
	Volume name
	Library
	Use (data or database backup)
Clients	Session number and count
	Start, end time and duration
	Amount of data
	Transfer rate
	Files examined and affected
	Successful
	Scheduled, actual start (if available)
	Status (if available)
	Return code and reason (if available)

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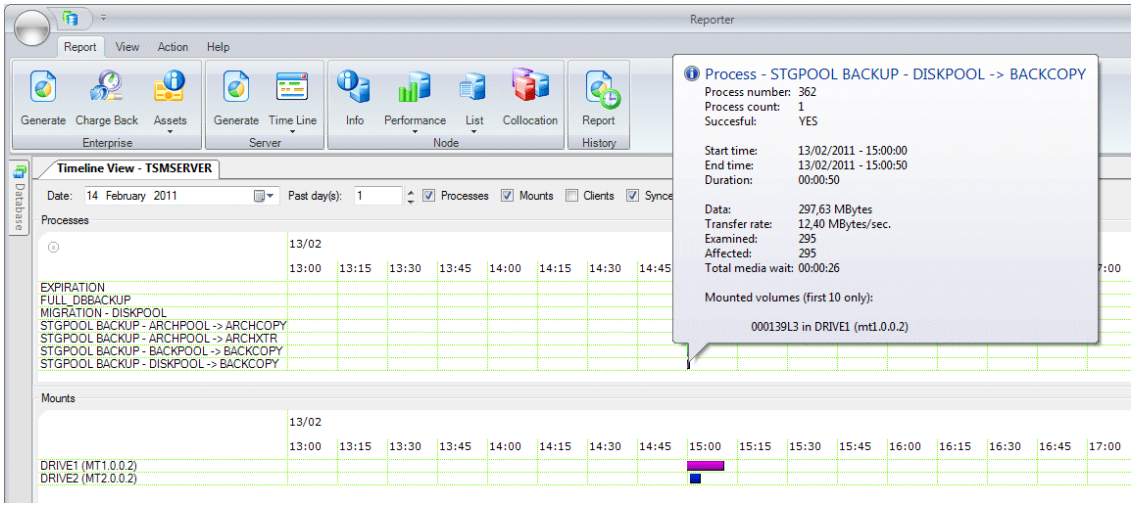
Tape Mount Match

Moving the mouse over a bar will allow you to a popup with more information about that process, tape mount or client session (shown in the graph).



Sample timeline with tape mounts matched with a reclaim process

When moving the mouse over a process or session that can be matched to a tape mount (or vice versa) it will mark that tape mount by coloring it purple.
In the popup all the mounted tapes are listed (up to 10 volumes).
The tape mount match is performed by the Reporter Agent after a successful data collection. In some cases it might not be possible to match some of the tape mounts with a session.

Clients Chart Popup

Moving the mouse over a bar in the Client Chart will allow you to see more information about that session.
In case the session is linked to a client schedule one of the following codes is displayed:

Code	Explanation
0	All operations completed successfully.
4	The operation completed successfully, but some files were not processed. There were no other errors or warnings. This return code is very common. Files are not processed for various reasons. The most common reasons are: • The file is in an exclude list. • The file was in use by another application and could not be accessed. • The file changed during the operation to an extent prohibited by the copy serialization attribute.
8	The operation completed with at least one warning message. Review dsmerror.log and dsmsched.log for scheduled

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	events to determine what warning messages were issued and to assess their impact.
12	The operation completed with at least one error message (except for error messages for skipped files). For scheduled events, the status will be Failed. Review the dsmerror.log file (and dsmsched.log file for scheduled events) to determine what error messages were issued and to assess their impact. As a general rule, this return code means that the error was severe enough to prevent the successful completion of the operation.
Note	For scheduled operations where the scheduled action is COMMAND, the return code will be the return code from the command that was executed. If the return code is 0, the status of the scheduled operation will be Completed. If the return code is nonzero, then the status will be Failed.

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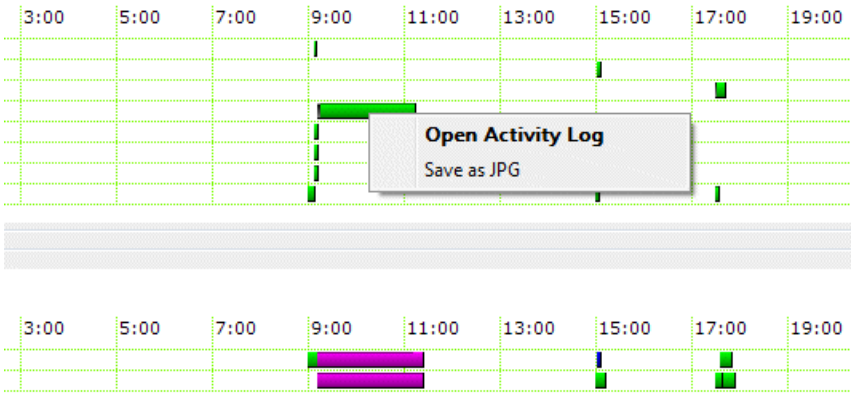
6.5.2 Menus

The only menu item on the ribbon can be used with the Timeline window is Save JPG.

Timeline Context Menu

Right mouse click on the chart. The context menu opens with the following functions:

- Open activity log, opens the activity log in a data grid within the selected time period
- Save as JPG, save this chart to JPEG



Context menu of Timeline window

Right mouse click on the bar. The context menu opens with the following functions:

- Open activity log, opens the activity log in a data grid with the selected bar (process, mount or client activity)
- Save as JPG, save this chart to JPEG

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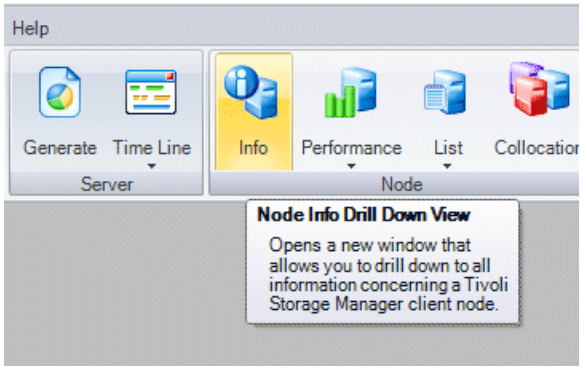
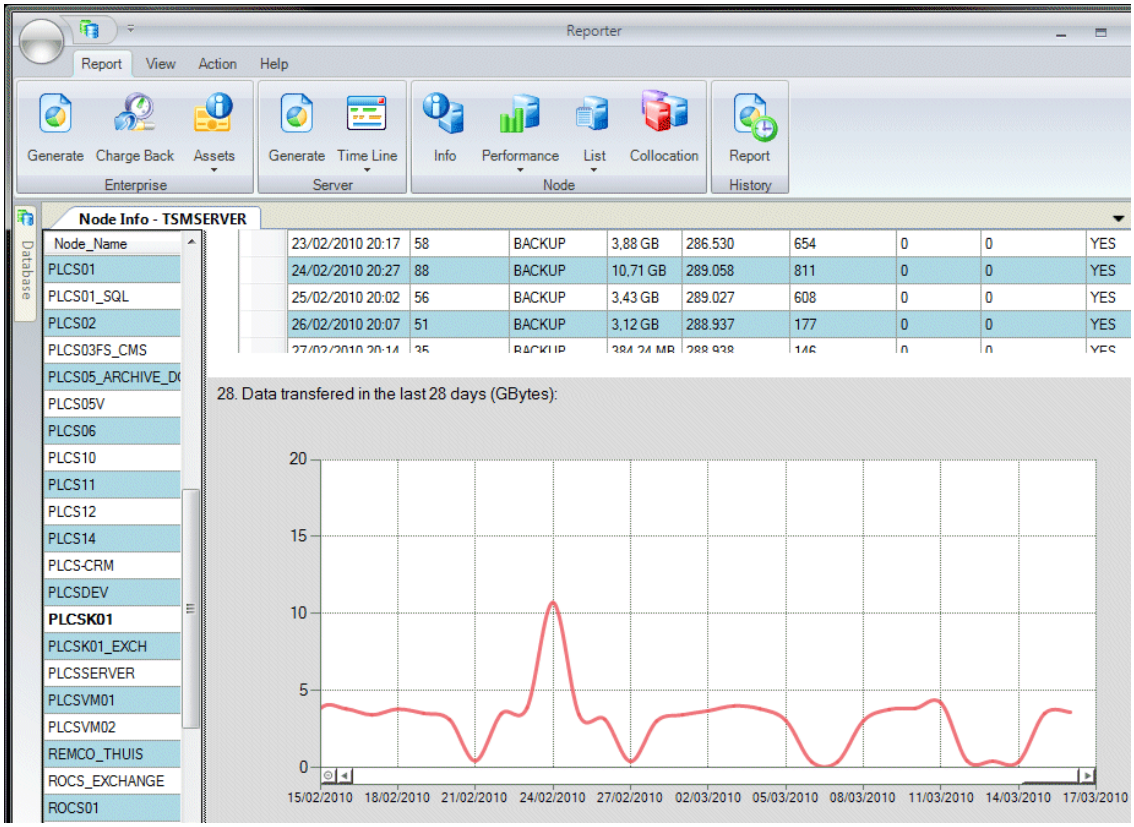
6.6 Node Information

The Node Info window, shows you drill down information of a specific client node.
To open the Node Info window select the Info icon on the ribbon under the Report tab, Node group section.



Report Ribbon, Node Info Drill Down selected

The following Node Info window is displayed. This window displays a full list of client nodes with node specific information.



Node Info windows, in horizontal view with a node drill down report

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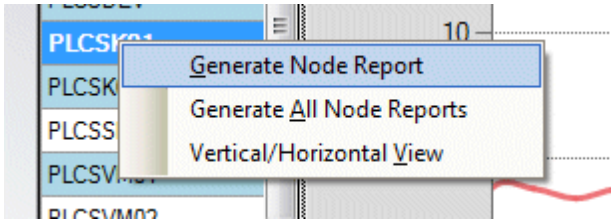
6.6.1 Menus

The Node Info window has a context menu on the data grid.

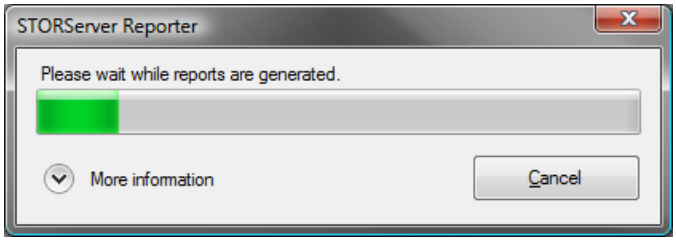
First select a client node then click on the right mouse button and the context menu opens with the following menu items:

- Generate Node Report, generates client node drill down reports of the selected node(s)
- Generate All Node Reports, generates client node drill down reports of all the selected nodes
- Vertical/Horizontal View, toggles between data grid vertical or horizontal view



Node List context menu

Select report Generate Node Report to generate a drill down report for the selected client node. The following dialog is shown with a progress bar (100% does not mean generation is finished).



Report generation progress bar

The client node report generated can be viewed from this window or from the Report History viewer window. The node drill down report uses the same kind of report sections as the Report viewer window refer to this section.

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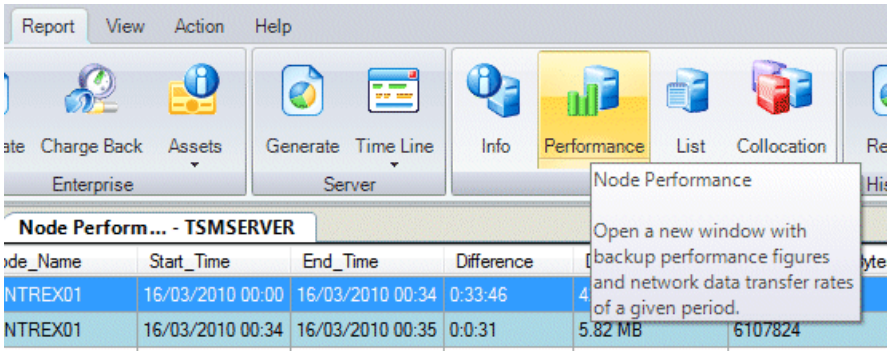
6.7 Node Performance

The Node Performance window, gives you performance information, like client node transfer speeds and data amounts within a selected period of time. To open the Node Performance window select the Info icon on the ribbon under the Report tab, Node section.

Generating the list depending on the amount of nodes might take a while, data is collected from e.g. activity log table



Ribbon, Node Performance selected

The Node Performance window shows a data grid with client node performance:

- Node name and domain name
- Start, end time and duration of backup
- Data amount, average file size and compression %
- Transfer speeds in KBytes/sec, GBytes/hour, Network Data Transfer Rate in KBytes/sec
- Number of examined and affected files
- Media wait in seconds

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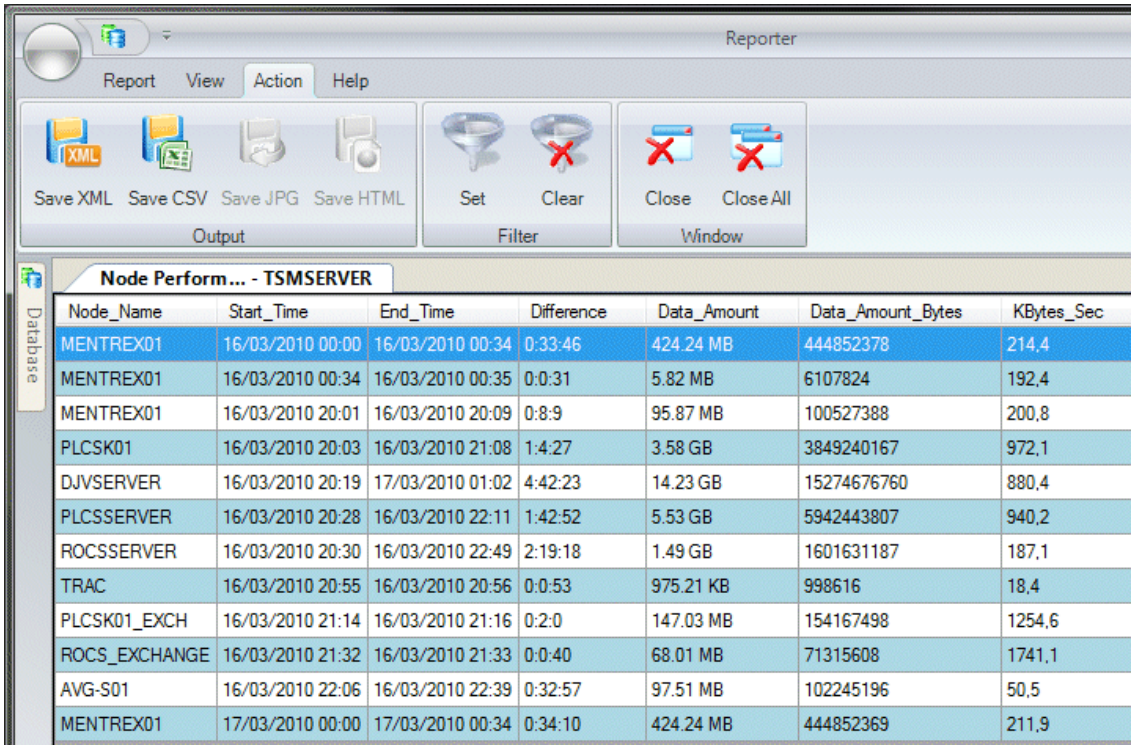
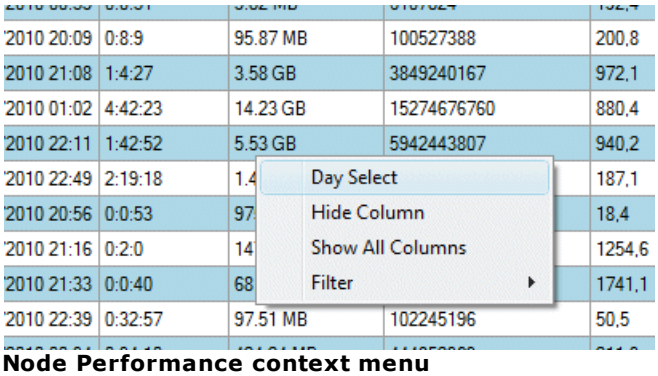


Node_Name	Start_Time	End_Time	Difference	Data_Amount	Data_Amount_Bytes	KBytes_Sec
MENTREX01	16/03/2010 00:00	16/03/2010 00:34	0:33:46	424.24 MB	444852378	214,4
MENTREX01	16/03/2010 00:34	16/03/2010 00:35	0:0:31	5.82 MB	6107824	192,4
MENTREX01	16/03/2010 20:01	16/03/2010 20:09	0:8:9	95.87 MB	100527388	200,8
PLCSK01	16/03/2010 20:03	16/03/2010 21:08	1:4:27	3.58 GB	3849240167	972,1
DJVSERVER	16/03/2010 20:19	17/03/2010 01:02	4:42:23	14.23 GB	15274676760	880,4
PLCSSERVER	16/03/2010 20:28	16/03/2010 22:11	1:42:52	5.53 GB	5942443807	940,2
ROCSSERVER	16/03/2010 20:30	16/03/2010 22:49	2:19:18	1.49 GB	1601631187	187,1
TRAC	16/03/2010 20:55	16/03/2010 20:56	0:0:53	975.21 KB	998616	18,4
PLCSK01_EXCH	16/03/2010 21:14	16/03/2010 21:16	0:2:0	147.03 MB	154167498	1254,6
ROCS_EXCHANGE	16/03/2010 21:32	16/03/2010 21:33	0:0:40	68.01 MB	71315608	1741,1
AVG-S01	16/03/2010 22:06	16/03/2010 22:39	0:32:57	97.51 MB	102245196	50,5
MENTREX01	17/03/2010 00:00	17/03/2010 00:34	0:34:10	424.24 MB	444852369	211,9

Sample of the Node Performance window

6.7.1 Menus

The Node Performance window has a context menu on the data grid.



Node Performance context menu

Click on the right mouse button and the context menu opens with the following menu items:

- Day Select, by default last 24 hours are shown
- Hide Column, hides the column under the mouse pointer
- Show All Columns, shows all hidden columns
- Filter Set/Reset, sets or resets a filter put on the data grid

Menu item Day Select will show you a dialog in which you can select a date range. Change the date by clicking on the small calendar. Then click 'OK' to update the data

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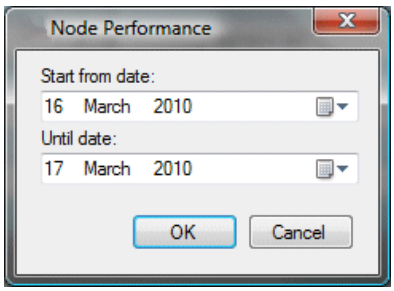
grid. Dependent on the selected range and amount of nodes acquiring the information might take a moment.



Node Performance Day Select

Hide Column menu item will hide the column under the cursor, when printing the data grid the column will not show up on the print or PDF.

Show All Columns menu item will unhide all columns that were previously hidden by the Hide Column command.

Filter Set/Clear menu items allow the user to filter the data for specific data. Refer to How to use the Filter function.

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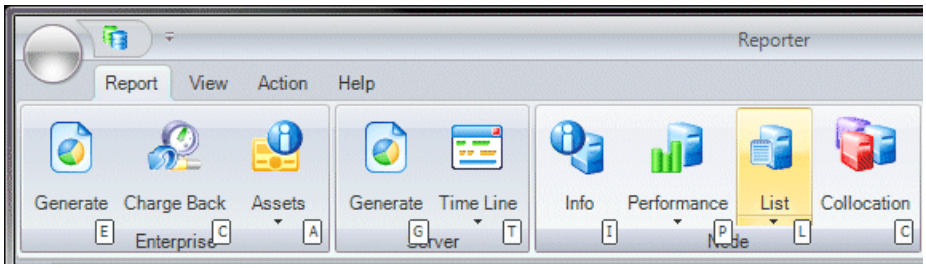
6.8 Node List

The Node List window, shows you node, occupancy, backup copy group and scheduling information of all client node in one view.
To open the Node List window select the Info icon on the ribbon under the Report tab, Node section. Gathering all client node information might take a moment.



Report ribbon tab with Node List selected

The Node Performance window show you a data grid with information in relation to client node performance:

- Node name, TCP name, TCP address, Platform, Domain
- Client version, OS version
- Archive and Backup Occupancy primary and copy pool
- Total amount of objects/files
- Archive Occupancy and number of files
- Amount of volumes in use primary and copy
- Audit occupancy
- Backup maximum and average within last 28 days
- All client schedule information
- Client default backup copy group

Generating the list depending on the amount of nodes might take a while, data is collected from e.g. activity log, schedule and backup copy group tables.

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6.8.1 Menus

The Node List window has a context menu on the data grid.

Click on the right mouse button and the context menu opens with the following menu items:

- Hide Column, hides the column under the mouse pointer
- Show All Columns, shows all hidden columns
- Filter Set/Reset, sets or resets a filter put on the data grid

Hide Column menu item will hide the column under the cursor, when printing the data grid the column will not show up on the print or PDF.

Show All Columns menu item will unhide all columns that were previously hidden by the Hide Column command.

Filter Set/Clear menu items allow the user to filter the data for specific data. Refer to How to use the Filter function.

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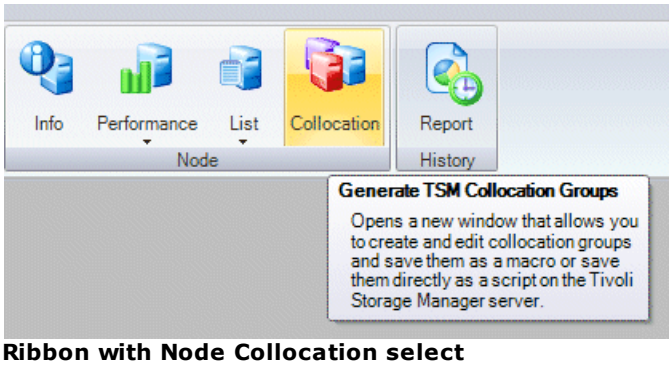
6.9 Node Collocation

TSM server version 5.3 and up is needed to use collocation groups.

A storage pool configured to use group collocation is needed.

The Node Collocation window, allows you to create collocation group quickly and save the commands as macro or put directly on the TSM server as a script. To open the Node Collocation window select the Collocation icon on the ribbon under the Report tab, Node section.

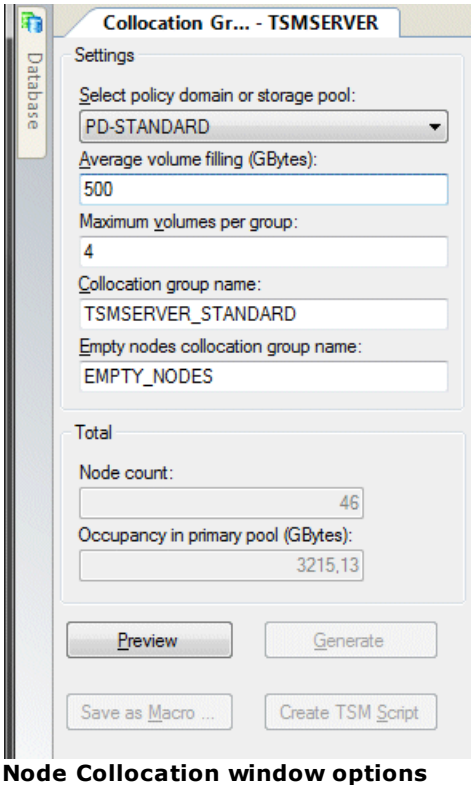

Info
Performance
List
Collocation
Report
Node
History
Generate TSM Collocation Groups
Opens a new window that allows you to create and edit collocation groups and save them as a macro or save them directly as a script on the Tivoli Storage Manager server.

Ribbon with Node Collocation select

The Node Collocation window consists of a settings pane on the left for configuring the collocation settings (shown on the right) and a data grid on the right with all client nodes and their collocation group.

The settings pane allows you to configure the collocation groups.
The following settings can be adjusted:

- Policy domain or storage pool
- Average volume filling
- Maximum amount of volumes per collocation group
- Collocation group name (numbers are automatically added)
- Collocation group name for empty client nodes



Node Collocation window options

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How to create collocation groups

First select a storage pool of policy domain. It is advised you use a storage pool to configure the collocation groups.

The average volume filling has been queried from volume data from the TSM server, you may adjust this value.

The initial value of the maximum amount of volumes per collocation group is 2, you may adjust this value.

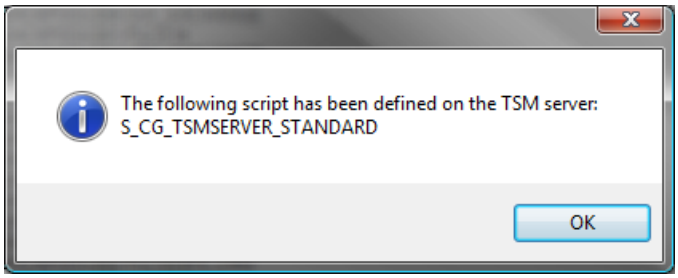
You may also change the suggested collocation group names.

In case you like to change the order in which group collocation is performed, you may sort the data grid columns differently. Initially the group collocation order starts with the smallest client nodes and up.

Then click 'Preview' to see the group collocation preview in the column COLLOCGROUP_NAME.
When you are satisfied with the groups created, click 'Generate'.

The data grid pane on the right will decease in height and a text pane will appear.
You can now copy paste, save as macro (click on Save as Macro) or create a TSM script directly on the TSM server (click on the 'Create TSM Script').

When you select 'Create TSM Script' a connection to the TSM server will be made and the script created and the message will show after the script has been created. A TSM administrator still needs to run the script on the TSM server (e.g. run S_CG_TSMSERVER_BACKPOOL).



Message box shown after creating a script on TSM

Warning, keep in mind NOT to put some client nodes into a single collocation group in case performance is a issue with Disaster Recovery.

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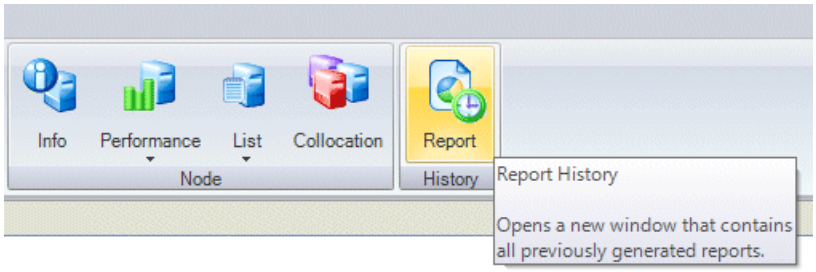
6.10 History

The History menu item (on the ribbon Report tab), allows you to view previously generated reports.



Report Ribbon, History selected

A window with a tree similar to the Report Viewer opens with the difference that you can select previously generated reports.
To view a previously generated report, select the report section in the tree on the left (full reports cannot be viewed but can be printed).
Selecting the root (History and Report root) will not load the reports, as this is a program restriction.

Like the Report Viewer window reports can be printed by section or whole report to a printer of PDF file.

Previously generated reports are kept until the user deletes them.
See Menu's to remove old reports.

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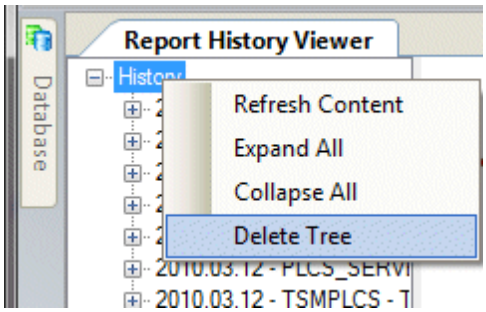
6.10.1 Menus

History Context Menu

Right click on the report. This opens the context menu with the following functions:

- Refresh Content, will reload and refresh the tree
- Expand All, will expand the complete tree in full
- Collapse All, will collapse the tree and expand it from the root
- Delete Tree, will delete all reports under that branch, user will be prompted first



Report History Viewer tree with context menu

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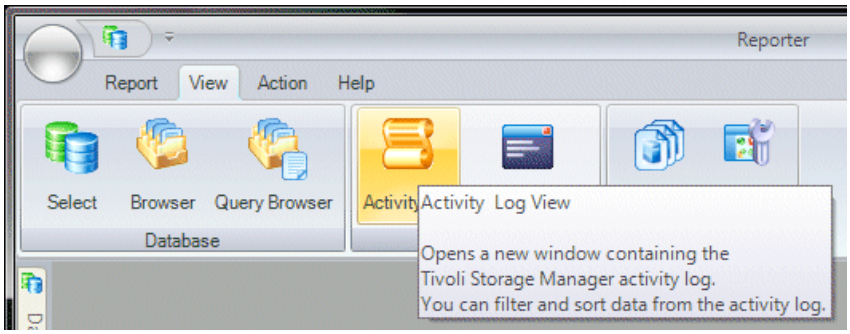
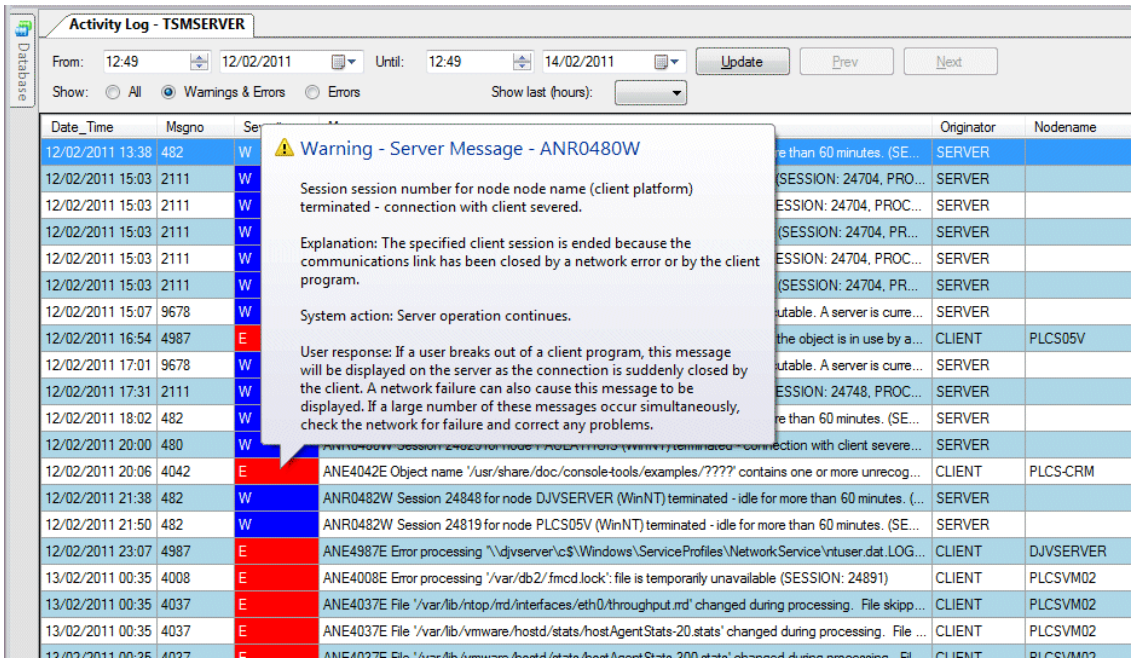
6.11 Activity Log

The Activity Log window, provides information about activity of the client and server. To open the Activity Log window select the ActLog icon on the ribbon under the View tab.



View Ribbon Tab with Activity Log selected


Activity Log - TSMSERVER
From: 12:49 12/02/2011 Until: 12:49 14/02/2011 Update Prev Next
Show: All Warnings & Errors Errors Show last (hours):
Date_Time Msgno Originator Nodename
Warning - Server Message - ANR0480W
Session session number for node node name (client platform) terminated - connection with client severed.
Explanation: The specified client session is ended because the communications link has been closed by a network error or by the client program.
System action: Server operation continues.
User response: If a user breaks out of a client program, this message will be displayed on the server as the connection is suddenly closed by the client. A network failure can also cause this message to be displayed. If a large number of these messages occur simultaneously, check the network for failure and correct any problems.
12/02/2011 20:06 4042 E ANE4042E Object name '/usr/share/doc/console-tools/examples/????' contains one or more unrecog... CLIENT PLCS-CRM
12/02/2011 21:38 482 W ANR0482W Session 24848 for node DJVSERVER (WinNT) terminated - idle for more than 60 minutes. (... SERVER
12/02/2011 21:50 482 W ANR0482W Session 24819 for node PLCS05V (WinNT) terminated - idle for more than 60 minutes. (SE... SERVER
12/02/2011 23:07 4987 E ANE4987E Error processing '\\djvserver\c$\Windows\ServiceProfiles\NetworkService\ntuser.dat.LOG... CLIENT DJVSERVER
13/02/2011 00:35 4008 E ANE4008E Error processing '/var/db2/.fmcd.lock': file is temporarily unavailable (SESSION: 24891) CLIENT PLCSVM02
13/02/2011 00:35 4037 E ANE4037E File '/var/lib/ntop/rrd/interfaces/eth0/throughput.rrd' changed during processing. File skipp... CLIENT PLCSVM02
13/02/2011 00:35 4037 E ANE4037E File '/var/lib/vmware/hostd/stats/hostAgentStats-20.stats' changed during processing. File ... CLIENT PLCSVM02

Sample activity log window with only warnings and errors

By default the Activity Log window will open the log of the last hour of activity log that is available.
The Activity Log window from and until time and date can be changed then click 'Update' to update the data grid.
In case that the amount of records cannot be displayed in the viewer in one go, the Next button will enable. Clicking the Next button will forward the viewer to the next set of records.

The three "Show" options allow you to show All messages, only the Warnings and Error messages or only Error messages with one click.
Moving the mouse over the message number or severity will show a popup with the information of that message.

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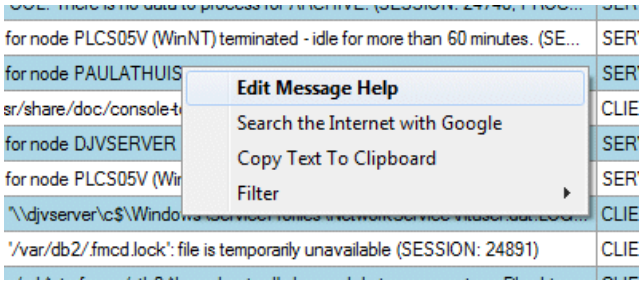
6.11.1 Menus

The Activity Log window has a context menu on the data grid.


for node PLCS05V (WinNT) terminated - idle for more than 60 minutes. (SE...
for node PAULATHUIS
Edit Message Help
Search the Internet with Google
Copy Text To Clipboard
Filter
for node DJVSERVER
for node PLCS05V (Wi
'/var/db2/.fmcd.lock': file is temporarily unavailable (SESSION: 24891)

Context menu on ActLog window

Click on the right mouse button and the context menu opens with the following menu items:

- Edit Message Help, shows TSM help for selected message and allows you to add or change the popup message
- Search Internet, open the default web browser and Googles the message number
- Copy Text to Clipboard
- Filter Set/Reset, sets or resets a filter put on the data grid

Filter Set/Clear menu items allow the user to filter the data for specific data. Refer to How to use the Filter function.

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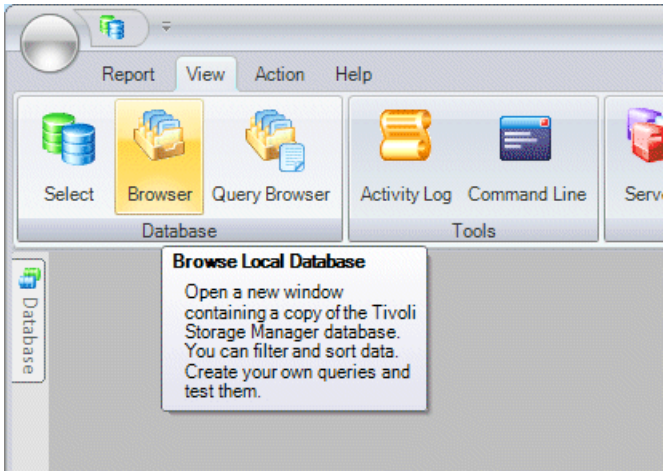
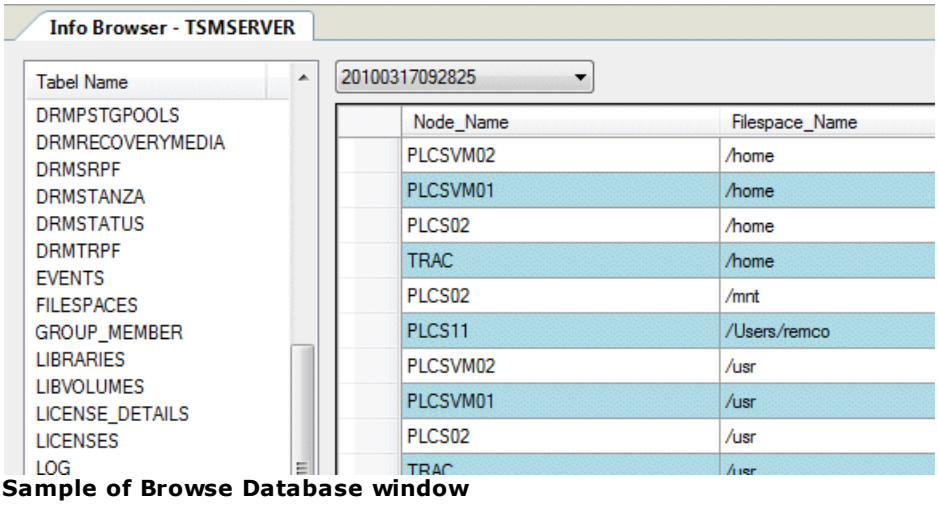
6.12 Browse Database

Browse Database, opens a window with a view to almost all database data.
To open the Info Browser window select the Info icon on the ribbon under the View tab.



View Ribbon Tab with Browse Database selected

The Info Browser window displays a list with all tables present in the database.
Select a table name in the list the right data grid will fill with data of that table.



Sample of Browse Database window

View the query by clicking the button Show SQL button.

Filter Set/Clear menu items allow the user to filter the data for specific data. Refer to How to use the Filter function.

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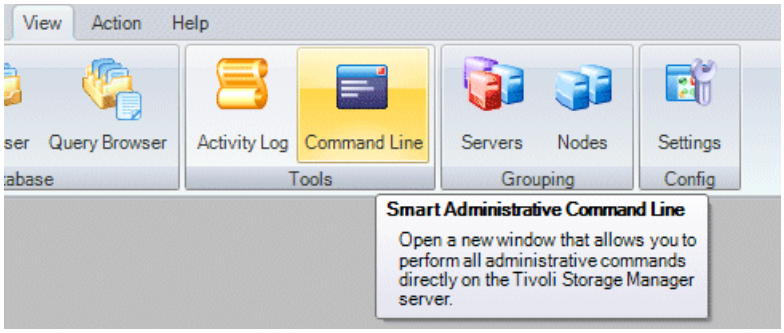
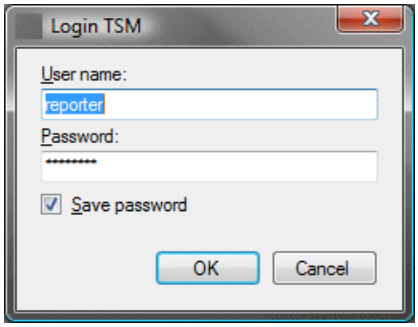
6.13 Command Line

The Command Line window, gives you a old fashioned TSM command line with console and extra features (DSMADMC). To open the Command Line window select the Command icon on the ribbon under the View tab.



View Ribbon Tab with Command Line selected

First you will be prompted for a username and password to access the TSM server command line, password can be saved for the next time.



TSM login prompt

Click 'OK' to validate user, next the Admin Command Line window will open.
The TSM command line allows you to give all TSM commands available.

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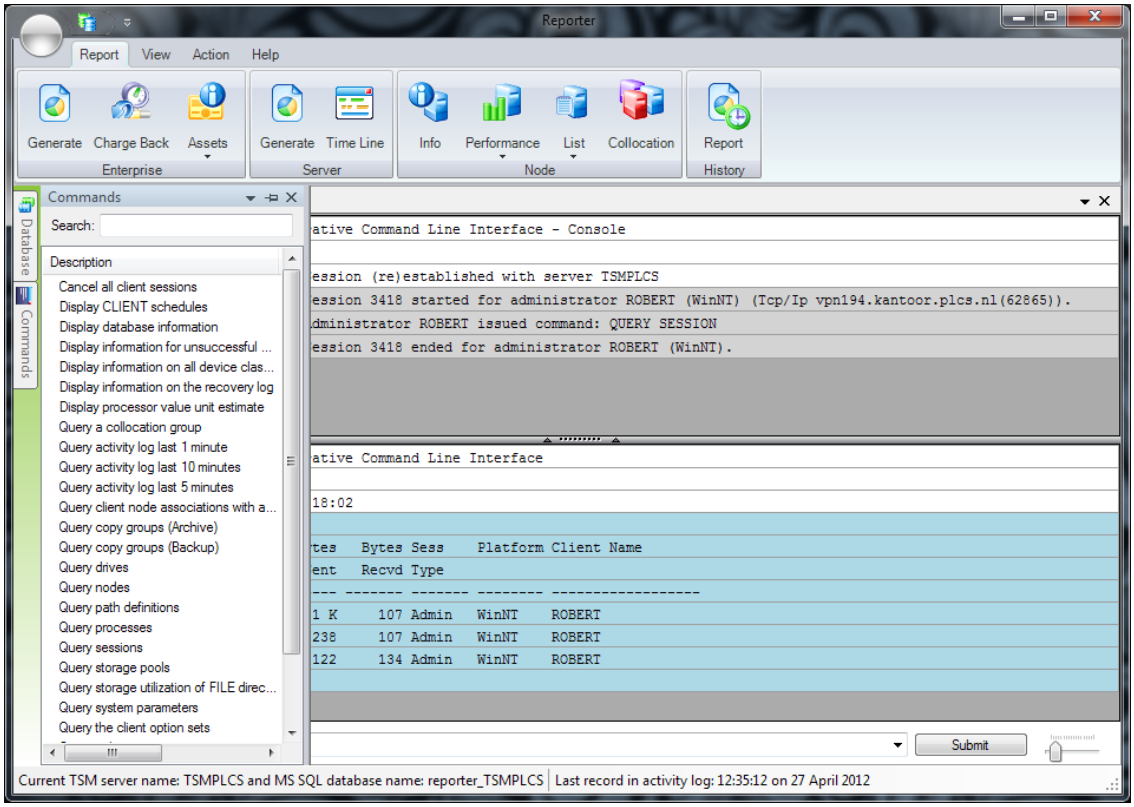

TSM Command line window with Commands dock window

The TSM Command Line window has the following extra features:

- History of commands by using up and down key, or by using the command line drop down menu
- Line counter on the 'tsm' label on the left bottom, by holding the mouse down in the data grid and dragging the cursor down the amount of selected lines can be viewed
- Scroll back in the data grid to view earlier commands
- Text in the data grid can be copied to the clipboard, with right mouse menu or CTRL+C
- Slider on the right bottom allows user to enlarge text (zoom) in the window
- Time stamp is provided with every command executed
- Save queries as XML or CSV

The follow hot keys are available in the command window:

F1	Get command help in HTML
F4	Drop down the command line to view previous commands.
CRTL+H	Hide/Show console window.
CTRL+R	Clear command line history.

Use the Commands dock slide to access many of the available TSM commands.

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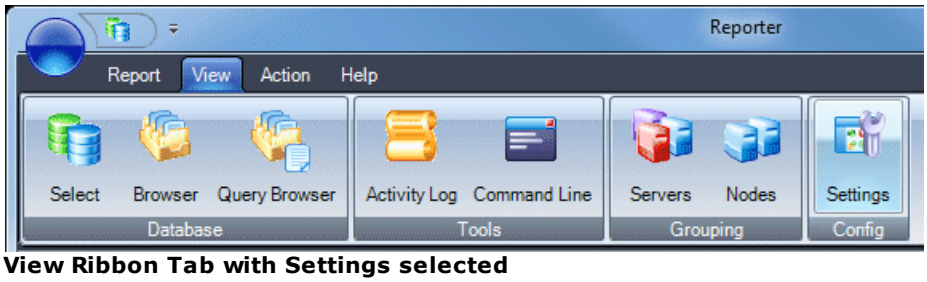
6.14 Settings

The Settings window, allows you to change report defaults, application paths and shortcut keys.
To open the Settings window select the Info icon on the ribbon under the Tools tab.

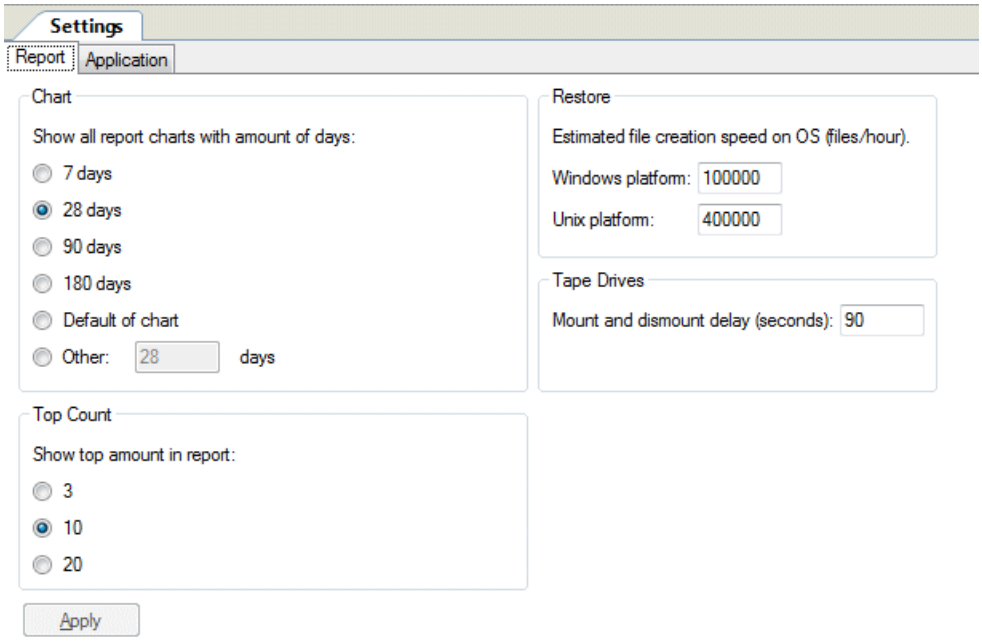


View Ribbon Tab with Settings selected

The Settings window has two tabs: Report and Application.

Report Tab

The report tab allows the user to configure parts of the report generation.
Chart, show all report charts with amount of days configures how many days the charts in the reports will show. Default each chart has its own amount of days history.



Sample of setting window with report tab

Restore estimated file creation speed on O.S., allows you to configure the maximum amount of files the Operating System (Windows and Unix) can create per hour. This parameter is used in the restore time estimation of a client node.
Please refer to section Reports for more information about these settings.

Tape drives, mount and dismount delay (seconds) is the amount of time it takes for a

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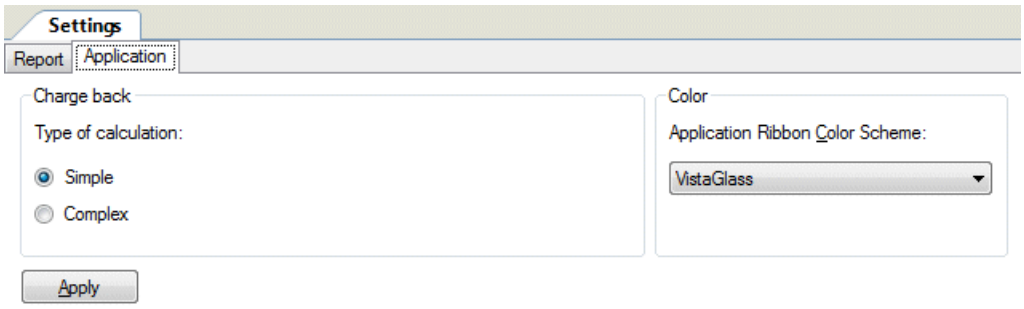
tape to mount and dismount. This parameter is also used in the restore time estimation of a client node.

Application Tab

The application tab allows the user to configure application specific parameters such as:

- Charge back calculation, simple or complex calculation (currently only simple available)
- Application Ribbon Color Scheme, color of the ribbon (Silver, Blue or Black)



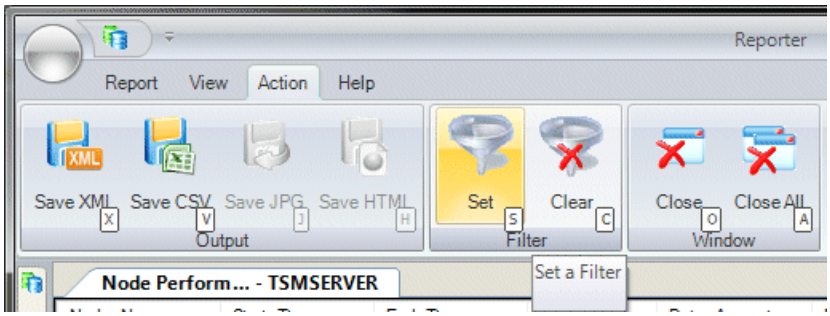
Sample of settings window with Application tab

6.15 How to use the Filter

The filter function of PLCS Reporter can be used to filter information in a data grid. The filter function is available for the following windows:

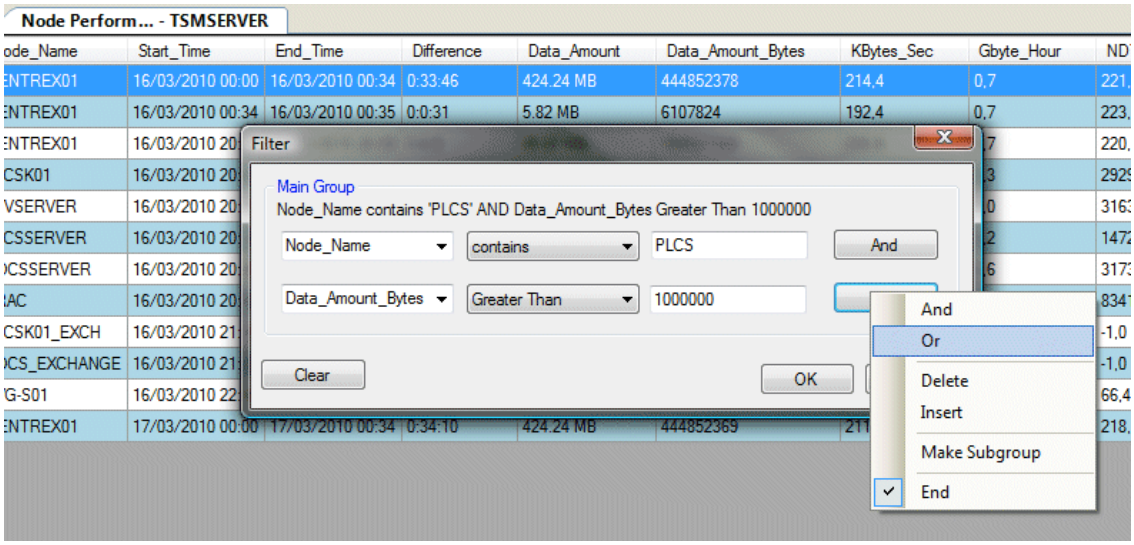
- Node Performance
- Node List
- Node Collection
- Activity Log
- Browse Database
- Command Line

The Filter Set function is available through the ribbon under tab View and shortcut keys ALT, A, S.
The Filter Clear function is available through the ribbon under tab View and shortcut keys ALT, A, C.



Action Ribbon with Filter Set selected

After selecting the ribbon button or pressing the shortcut keys the Filter dialog box will open.



Sample of the filter dialog, with filter set.

The Filter dialog box allow you to set complex filters with AND and OR operators.

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For instance you can filter on a list: NODE_NAME contains NODE and DOMAIN_NAME equal to STANDARD.
Click 'OK' to set the filter.

With the help of the filter dialog box you can create complex filters. The items available to use in the filter are:

Filter Function	Feature
And	Operator, both filter options must be true
Or	Operator, each filter option must be true
Delete	Removes filter from list at location
Insert	Inserts filter into list at location
Make Subgroup	Creates a subgroup of operators
End	Sets last filter

E.g. Open the database browser and select NODES from the table list. Then set a filter, selecting from a list of not locked nodes all Windows machines and all Windows TDP's the filter will look something like this (e.g.):

PLATFORM_NAME contains 'WinNT' and LOCKED equal to 'NO' OR (Group1)
PLATFORM_NAME contains 'Win32'

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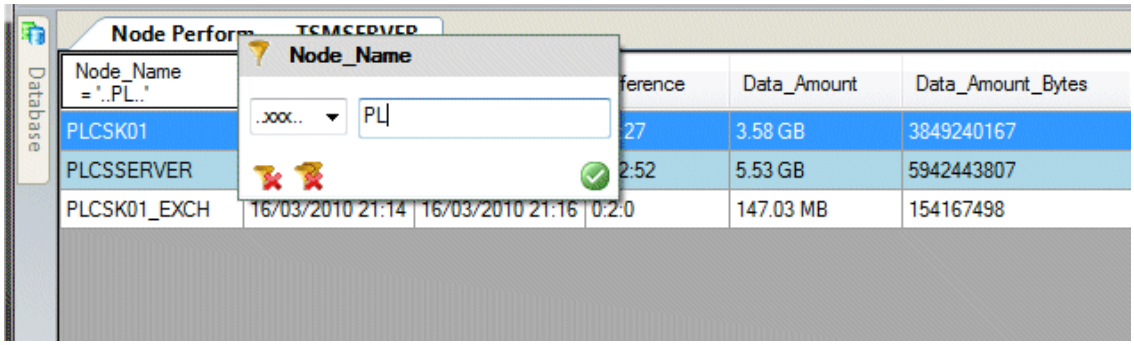
Quick Filter

The quick filter function of PLCS Reporter can be used to filter information in some of the data grids.
The filter function is available for the following windows:

- Node Performance
- Node List
- Activity Log
- Browse Database

Right click on the column header of the data grid. The following dialog will popup and you may select and type the filter you like to use.



Sample of quick filter popup on a data grid view.

It is possible to use multiple quick filters at the same time.
To clear the filters either click on the ribbon bar, clear filter or in the right mouse popup dialog on one of the icons with a cross.

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Part VII

7 Reports

In this chapter the Enterprise and Server reports that can be generated are explained.

In case you need a certain report, please contact us through the support web site and make your request.

7.1 Server

In this chapter the server specific reports that can be generated are explained.

7.1.1 Server Report

The Server report (Generate Report) describes in short the current TSM server and connected TSM server(s).

7.1.2 Database Report

The Database report (Generate Report) describes all TSM database related information. Database information like:

- Size and utilization
- Fragmentation
- Cache hit
- Volume configuration
- Trigger configuration
- Warnings and errors
- Historic data

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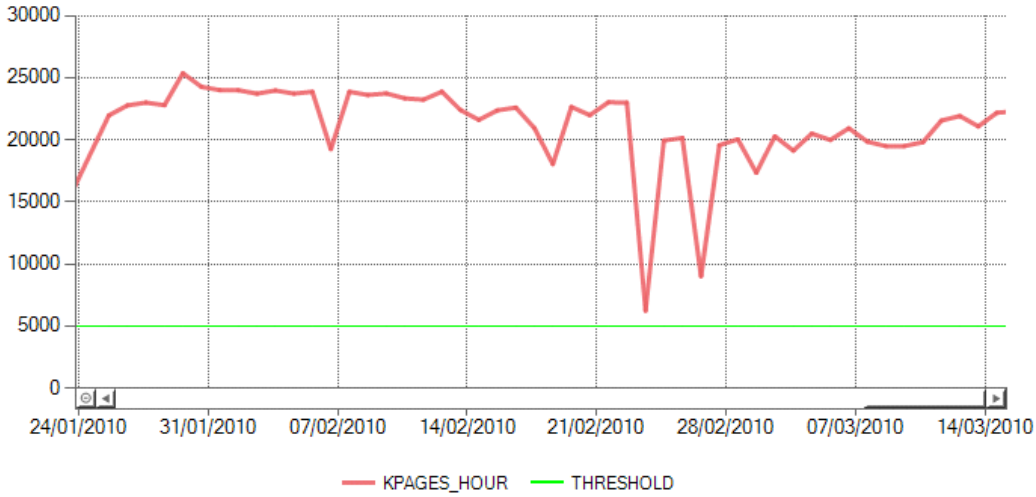
37. TSM database backup speed per date within 48 days (KPages/Hour) and lower threshold:



Sample database backup performance chart (with performance dip showing)

7.1.3 Drives and Library Report

The Drive and Library report (Generate Report) describes all TSM tape drive and library related information.
Drive information like:

- Device list
- Offline drives and paths
- Drive utilization
- Number of tape mounts (7 days, 28 days)
- Media wait
- Drive errors
- Library information

7.1.4 DRM Report

The DRM report (Generate Report) describes all Disaster Recovery Manager related information.
DRM information like:

- Volume count in various states
- Last database backup
- Reuse delay of storage pools

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- Errors on DR volumes
- Last prepare command and file

7.1.5 Log Report

The Log report (Generate Report) describes all TSM log related information.
Log information like:

- Size and utilization
- Warnings and errors
- Historic information
- Offline log volumes
- Database backup trigger
- Log mirror mode

7.1.6 Node Report

The Node report (Generate Report) describes all TSM general node related information.
Node information like:

- Total count
- Different IP addresses
- Last access
- Nodes without schedule or client option set
- Node top X in backup
- Node count over last year
- Inactive nodes

7.1.7 Occupancy Report

The Occupancy report (Generate Report) describes all TSM client occupancy related information.
Occupancy information like:

- Top X nodes total amount stored
- Top X nodes total amount files stored

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- Historic growth
- Calculated increase/decrease
- Total occupancy

7.1.8 Performance Report

The Performance report (Generate Report) describes all TSM server and client performance related information.
Performance information like:

- Performance parameters
- Top X in fastest client transfer
- Top X in slowest client transfer
- Average backup speeds

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7.1.9 Processing Report

The Processing report (Generate Report) describes all TSM processing related information.
Processing information like:

- Failed processes
- Failed files and database files
- Warning and errors count in last 24 hours
- Total media wait
- Time spent on housekeeping processes
- Database backup and expiration speeds
- Running restores

7.1.10 Schedules Report

The Schedules report (Generate Report) describes all TSM client schedule related information.
Schedules information like:

- Completed
- Failed
- Missed
- Completed with attention required

7.1.11 Security Report

The Security report (Generate Report) describes all TSM security related information.
Security information like:

- Locked admins and nodes
- Inactive admins and nodes
- Most active admins
- HALT performed
- Password minimum length and invalid sign on count
- Client attribute changes
- Filespace deleted

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7.1.12 Storage Pool Report

The Storage Pool report (Generate Report) describes all TSM storage pool related information.
Storage Pool information like:

- Capacity and usage
- Total amount and number of files
- Node count per storage pool
- Caching and collocation information

7.1.13 Versions Report

The Versions report (Generate Report) describes all TSM version related information.
Versions information like:

- Server version
- Client version
- Version compliancy
- Licenses in use

7.1.14 Volume Report

The Volume report (Generate Report) describes all TSM volume related information.
Volume information like:

- Filling per storage pool
- Average filling per storage pool and device class
- Historic information
- Scratch and private distribution
- Volume count over last year
- Reclaim eligible volumes
- Private volumes not in use

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7.1.15 Trending Report

The formulas used in the trend reports are explained in the following part.

Exponential Growth Rate

Exponential growth (or geometric growth) occurs when the growth rate of a mathematical function is proportional to the function's current value. Such growth is said to follow an exponential law; the simple-exponential growth model is known as the Malthusian growth model. For any exponentially growing quantity, the larger the quantity gets, the faster it grows. An alternative saying is 'The rate of growth is proportional to the state of growth'. The relationship between the size of the dependent variable and its rate of growth is governed by a strict law of the simplest kind: direct proportion. It is proved in calculus that this law requires that the quantity is given by the exponential function, when using the correct time scale. This explains the name.

Formula used to calculate rate:

r = ln(Amount last day/Amount first day)/(Total days/365)

Rate times 100 is the growth rate in percentages.

Compound Annual Growth Rate

Compound Annual Growth Rate (CAGR) is a business and investing specific term for the geometric mean growth rate on an annualized basis. CAGR is used to describe the growth over a period of time of some element of the business, usually revenue, although other measures may be used (such as the number of units delivered, registered users, etc.).
CAGR is not an accounting term, but remains widely used, particularly in growth industries or to compare the growth rates of two investments because CAGR dampens the effect of volatility of periodic returns that can render arithmetic means irrelevant. CAGR is often used to describe the growth over a period of time of some element of the business, for example revenue, units delivered, registered users, etc.

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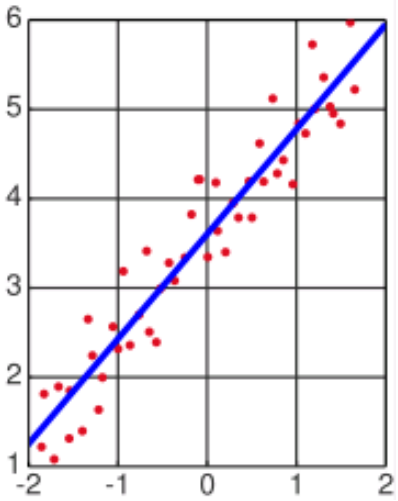
Linear Regression

Linear regression is a form of regression analysis in which data are modeled by a least squares function which is a linear combination of the model parameters and depends on one or more independent variables. In simple linear regression the model function represents a straight line.
The results of data fitting are subject to statistical analysis.



Example of linear regression with one independent variable

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7.1.16 Restore Report

The Restore report is a section in the Node Information windows.
The parameters and sections of this report are explained and elaborated in the following part.

Restore Time

Factors like file system performance (speed of file creation and throughput), network performance (LAN/WAN throughput) and number of tape mounts (mounts and dismounts of tapes).

The time durations in this section can be used to estimate a TSM client node restore. A restore can be estimated with the following steps:

- Estimated data restore time, the speed is based on the average backup speed over the past 28 days.
  This speed is used by dividing the total amount of occupancy on the client with this speed.
- Estimated file creation time, the speed is the time it takes to create for instance 100.000 files on the file system of the Operating System in 1 hour.
  The duration is calculated with the total amount of files on the TSM server.
  The speed for file creation can be configured in Settings on the report tab, group restore.
  These numbers are experience figures for file creation on a Operating System.
- Estimated time for mounting and dismounting tapes from either primary or copy pool tapes.

These three numbers have to be added together to get a estimated restore time, this is probably worst case scenario, but should be close to reality.

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7.2 Enterprise

In this chapter the enterprise reports that can be generated are explained.

7.2.1 Server Report

The Server report (Enterprise Generate Report) describes in short the TSM servers in the group and any data collection inconsistancies.

7.2.2 Database Report

The Database report describes TSM server group database related information.
Database information like:

- Utilization and capacity in chart
- Utilization and capacity per server

7.2.3 Drives Report

The Drive and Library report describes TSM server group tape drive related information.
Drive information like:

- Drive utilization
- Number of tape mounts (28 days)

7.2.4 Occupancy Report

The Occupancy report describes all grouped TSM servers and their client occupancy related information.
Occupancy information like:

- Total occupancy

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- Historic growth
- Calculated increase/decrease
- Liniear regression for next 2 years

7.2.5 Processing Report

The Processing report describes all grouped TSM servers processing related information. Processing information like:

- Total amount of data per day
- Total amount of backup and archive data per day
- Failed processes over last 48 hours

7.2.6 Schedules Report

The Schedules report describes all grouped TSM servers and their client schedule related information.
Schedules information like:

- Pie chart of status over last 28 days
- Total status count chart of last 28 days

7.2.7 Volumes Report

The Volume report describes all grouped TSM servers volume related information. Volume information like:

- Scratch and private distribution
- Last recorded scratch and private count
- Chart of the total amount of volumes per device class

7.2.8 Client Report

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The Client report shows the amount of client nodes registered during the last months. Client information like:

- Total client nodes registered per month
- Total client nodes registered in last 3 months
- Chart of total client nodes registered on TSM server group

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Part VIII

8 Operational Reports

Since TSM version 4.x IBM was providing a free reporting tool named Tivoli Operational Reports (TOR). This product was able to generate a HTML based report with fixed numbers and details. The report was generated by a query on the TSM database and the output convert into HTML pages. Beside having the HTML output on the report system the report could be E-mailed.

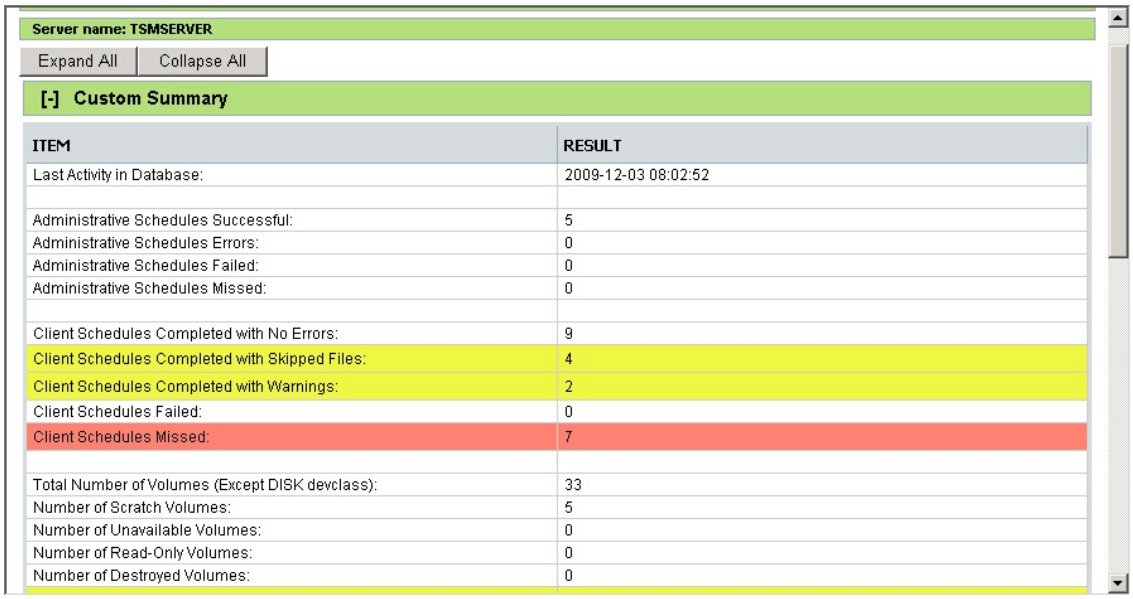
IBM released a new version of TSM (version 6) and support and functions for TOR are based on TSM5.5 and will not be upgraded to TSM version 6.

Customers who did like to use the functionality of TOR can now with our Reporter release 2.4 (and higher) use this based on data collection with the Agent and report generation is done on the MS SQL database. The TSM server(s) are not queried for these HTML reports.

Operational Reporting has been created in the same way as IBM has created this on request of our customers.
The main difference is that this reports is kept in HTML purely as figures and numbers without any graphics as Reporter offers this functionality already.

8.1 HTML File

The Operational Reports can be mailed and can also be found in the report file path and can be opened with a web browser.
After opening the HTML file with a web browser the page is by default shown in a folded form. Click the plus sign or expand all to show all report sections.



Server name: TSMSERVER

Expand All | Collapse All

[-] Custom Summary

ITEM	RESULT
Last Activity in Database:	2009-12-03 08:02:52
Administrative Schedules Successful:	5
Administrative Schedules Errors:	0
Administrative Schedules Failed:	0
Administrative Schedules Missed:	0
Client Schedules Completed with No Errors:	9
Client Schedules Completed with Skipped Files:	4
Client Schedules Completed with Warnings:	2
Client Schedules Failed:	0
Client Schedules Missed:	7
Total Number of Volumes (Except DISK devclass):	33
Number of Scratch Volumes:	5
Number of Unavailable Volumes:	0
Number of Read-Only Volumes:	0
Number of Destroyed Volumes:	0

Sample HTML Reporter Operational Report

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The operational report is purely for quick overview and 24 hours statistics.

The report is generated after a data is collected into the SQL database. Reports are generated from the SQL database. The last data collection point is displayed in the last Activity log date.

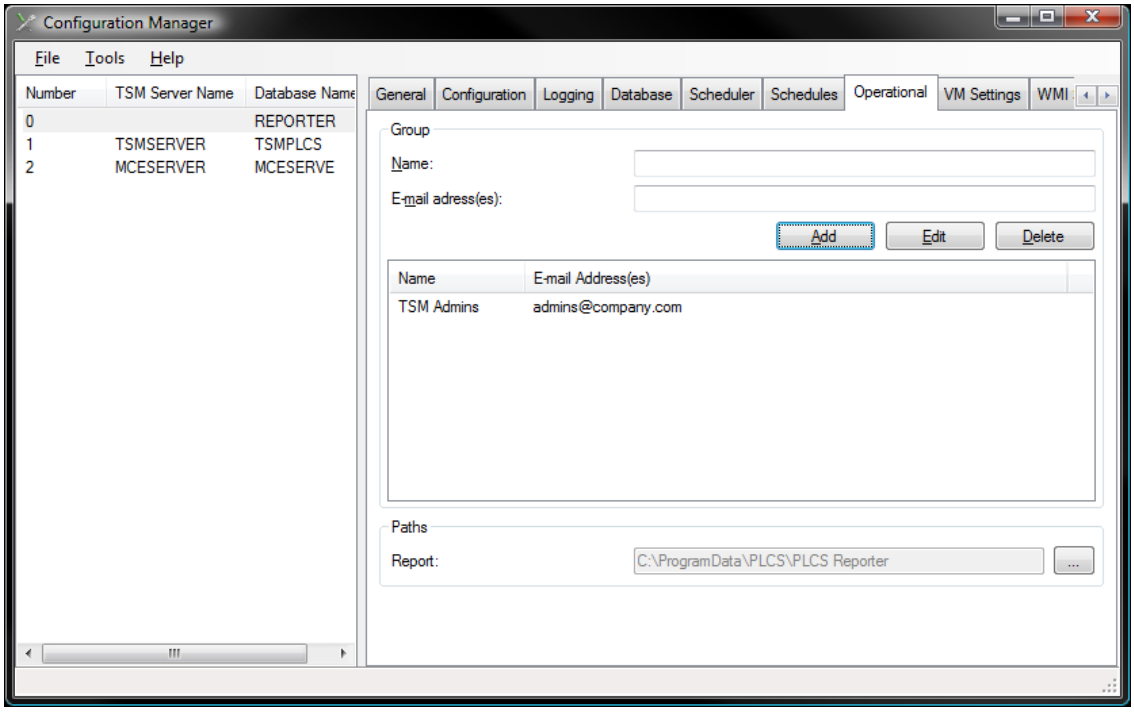
Not all items have been created as they were available in IBM's TOR e-mail report.
In case you need a certain report added, please contact us through the support web site and make your request.

8.2 Configure

Configuring Reporter Operational Reports (ROR) in the configuration manager.

You can enable Reporter to generate the Operational Reports and mail them to a group.

For the operational reports a separate Operational tab in the Configuration Manager is available to define a group name with E-mail address(es) where the report should be sent to.
In case you like to E-mail a ROR enter a group name and one or multiple E-mail addresses (separated by a ";"), and click the Add button.
To remove a E-mail group, select the group name and click the Delete button.



Sample of the operational tab with email address

After configuring the E-mail destination you need to set up a schedule to create the report for a TSM server.

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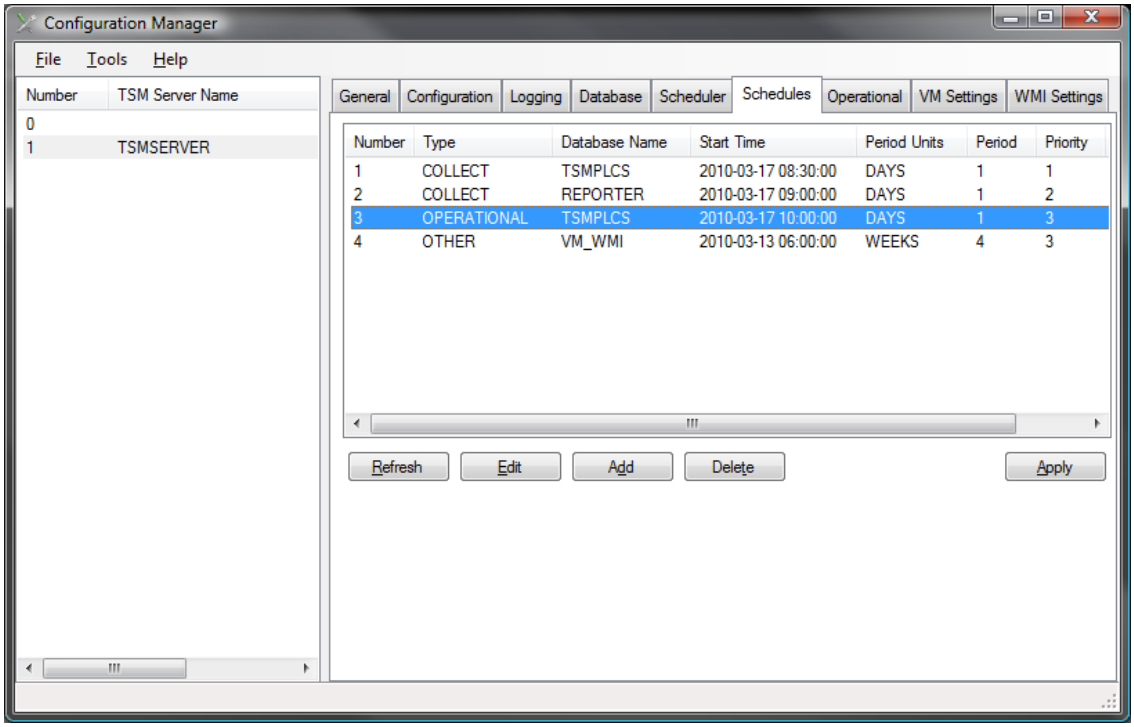

Sample of Schedule tab with a operational schedule selected

To create the schedule perform the following steps:

- Click on the Schedules tab and click Add
- Select the schedule options e.g. Start Date and Time, Period, Period Unit
- Select a schedule with type 'OPERATIONAL'
- Select the database name of the TSM server
- Select or leave the default report file
- Choose if you like to E-mail the report to a group
- Check the "Send Alert E-mail Only" in case you like to send a mail only incase a threshold is exceeded (e.g. no scratch, backups failed, etc.)

Review the arguments in the dialog and click OK.

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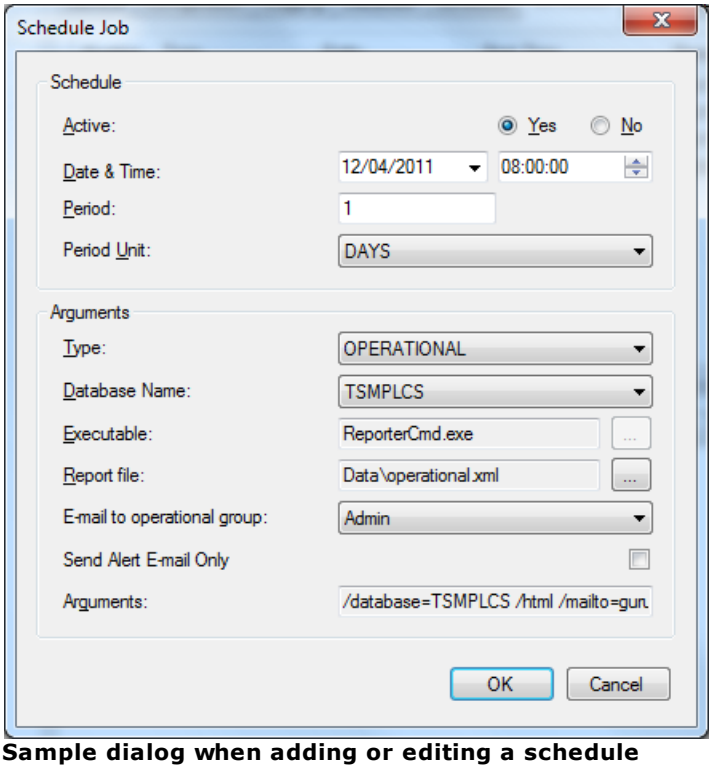
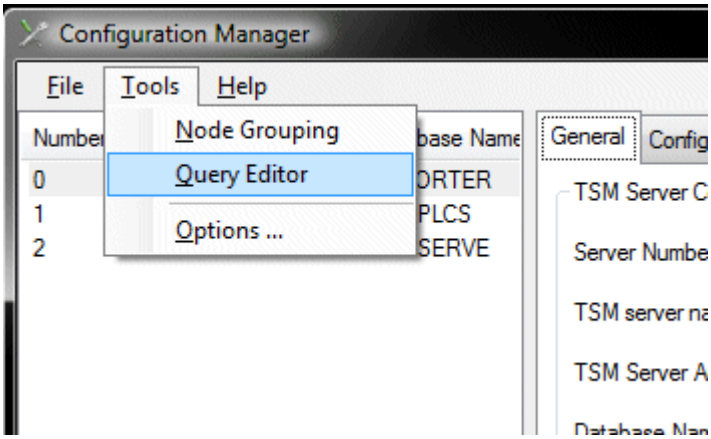


Sample dialog when adding or editing a schedule

Then click Apply to save the Schedules.

8.3 Query Editor

The Query Editor PLCS Reporter can be used to create your own queries for operational reporting.
In the configuration manager application click on the Tools menu and select the Query Editor menu (select a TSM connection first).



The following dialog window will open. Here select a operational report file (e.g. the default report file: operational.xml)
If you wish to create your own operational query file, browse to the report directory (default: C:\Program Files\PLCS Reporter\Data).

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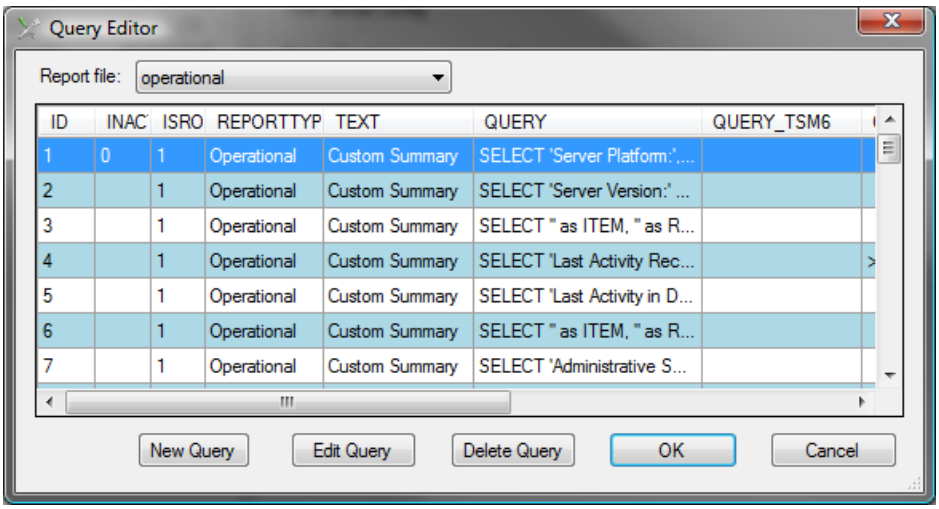
Then copy the sample_operational.xml file and rename it with extension XML. Reopen the Query Editor dialog and now the file will appear in the drop down box.


Query Editor
Report file:
operational
ID
INAC
ISRO
REPORTTYP
TEXT
QUERY
QUERY_TSM6
1 0 1 Operational Custom Summary SELECT 'Server Platform:',...
2 1 Operational Custom Summary SELECT 'Server Version:' ...
3 1 Operational Custom Summary SELECT '' as ITEM, '' as R...
4 1 Operational Custom Summary SELECT 'Last Activity Rec...
5 1 Operational Custom Summary SELECT 'Last Activity in D...
6 1 Operational Custom Summary SELECT '' as ITEM, '' as R...
7 1 Operational Custom Summary SELECT 'Administrative S...
New Query
Edit Query
Delete Query
OK
Cancel

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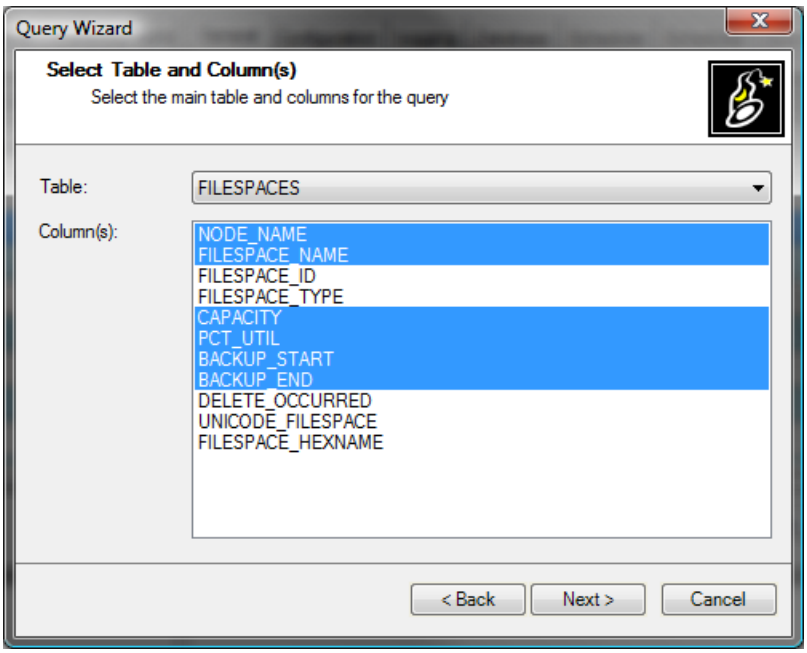
New Query

To create a new query using the Query Wizard click on the New Query button in the Query Editor dialog.

Query Wizard
Welcome to the Query Wizard
This wizard will guide you through the query creation process.
To continue, click Next.
< Back
Next >
Cancel

Click Next to continue creating a new query.



In the next page select the table you want to use in the query and next select the columns you would like to see in the report query.
Click next for the next step: query conditions.

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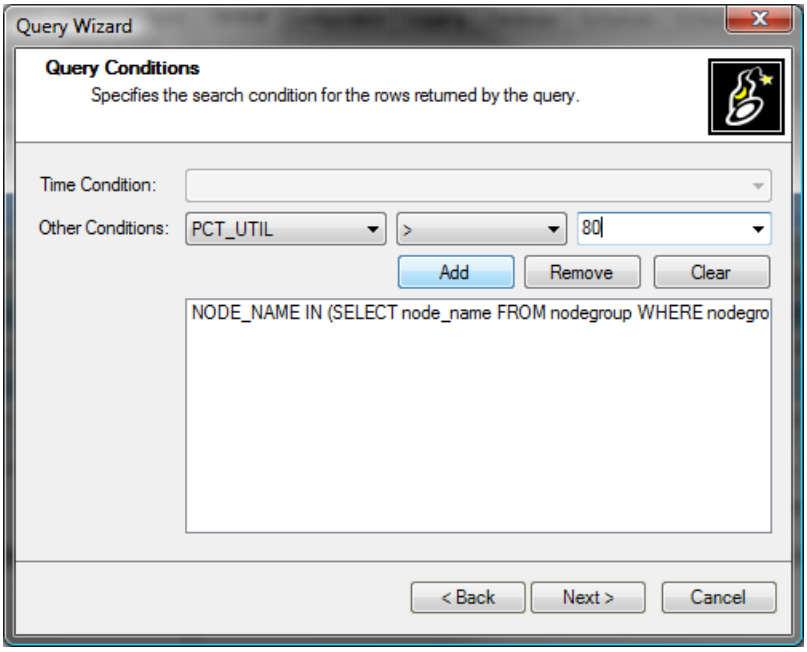
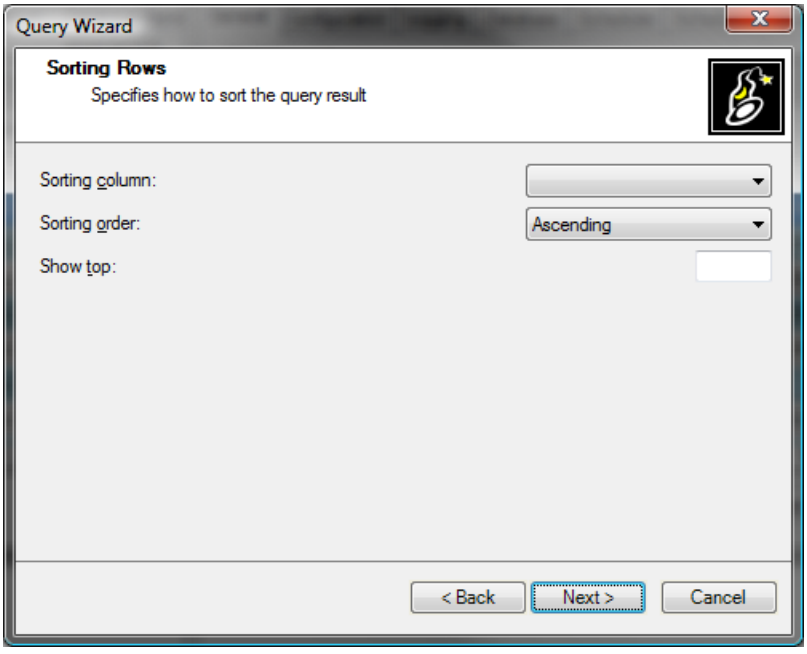


In the query conditions page the WHERE clauses are added to the query.
Select the appropriate condition and click Add to add the condition to the query (in one of the next pages you will be able to review the query and change it).
Click next when you are done adding conditions.



In the sorting rows page of the wizard, column sorting and order can be changed.
Also on this page it is possible to specify a maximum number of results, the show top value. Enter a numeric value here (e.g. 10 will show only first 10 entries returned from the query).

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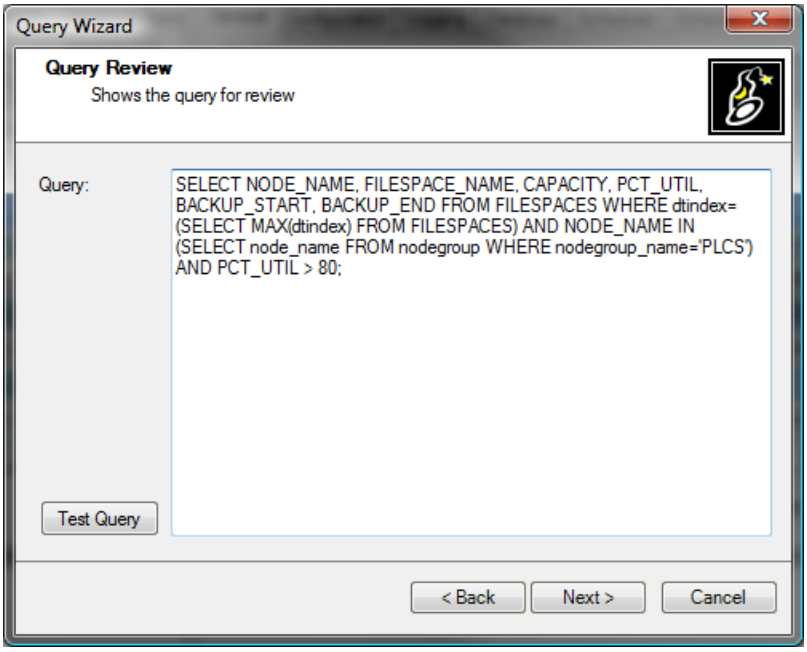
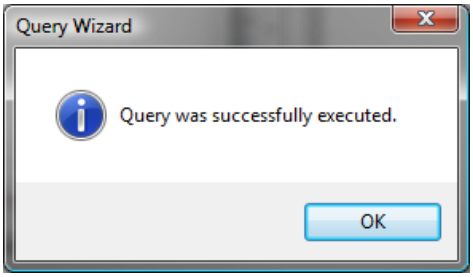

Query Wizard
Query Review
Shows the query for review
Query:
SELECT NODE_NAME, FILESPACE_NAME, CAPACITY, PCT_UTIL, BACKUP_START, BACKUP_END FROM FILESPACES WHERE dtindex= (SELECT MAX(dtindex) FROM FILESPACES) AND NODE_NAME IN (SELECT node_name FROM nodegroup WHERE nodegroup_name='PLCS') AND PCT_UTIL > 80;
Test Query
< Back
Next >
Cancel

The query review page allows you to change and validate the query.
Click Test Query to verify it, a message box will popup and inform you about the result.



In the Query Editor dialog behind the wizard the result of the query will be displayed.
Click next in case the query is satisfactory (changes to the query can always be made later).

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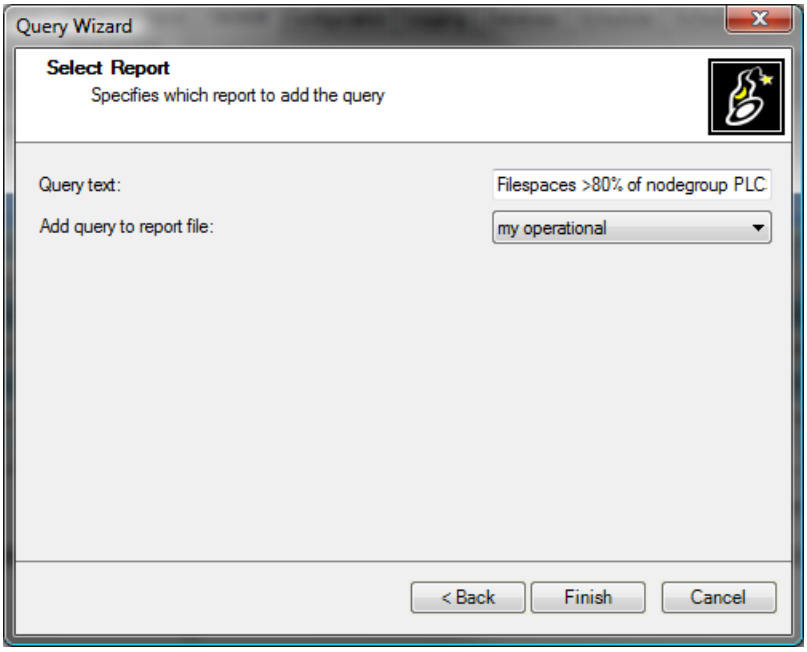

In the last page in the wizard type a query caption text you wish to see in the report.
And select the report file you wish to add this query.
Click Finish, now the new query is added to the report file and can be reviewed in the Query Editor dialog.

Edit Query

To edit a existing query, select a report file and then double click on the query in the grid or select the query in the grid and click Edit Query.
The following dialog will be shown, some of the options here include:

Active or Inactive
Row (Yes, will allow value comparison or No)
Report label text
Query (before TSM v6.x)
Query (from TSM v6.1 and on)
Comparison (<>,=,<,>,>=,<=, like and not like)
Value (comparison value)
When compare is true (display as warning/yellow or error/red)

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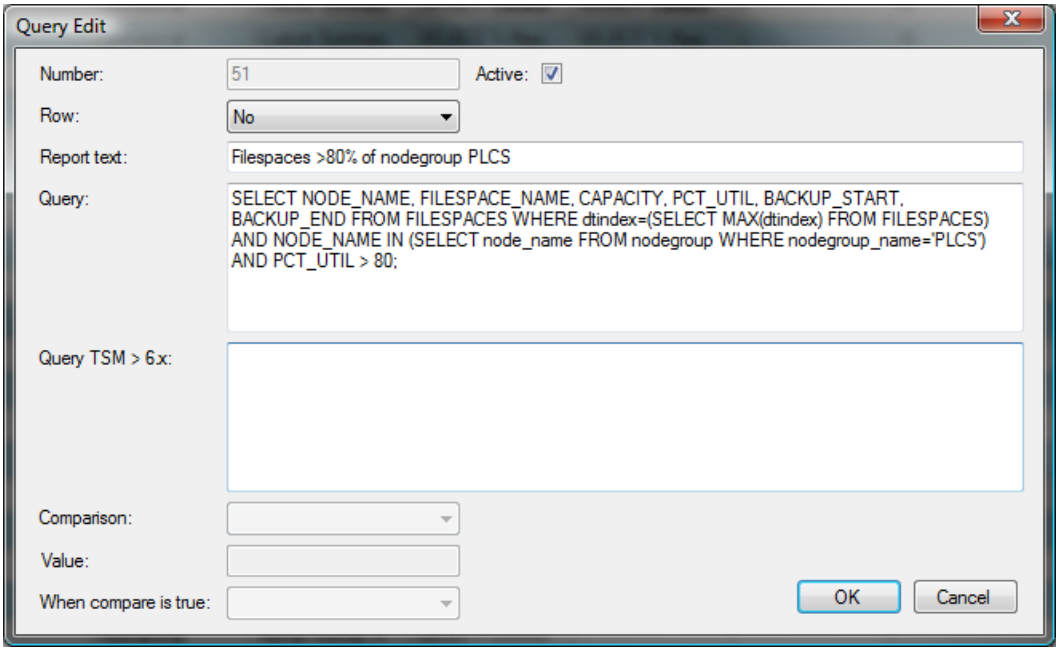

In case the query needs to work on a TSM v6.x version the Query TSM > 6.x box needs to be supplied.
The report generator will know which query to use when generating the report the user needs to provide the query in case this is different from before version 6.

Delete Query

To delete a query, select a report file and then select the query in the grid and click Delete Query.

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Part

9 Troubleshooting

This section contains information that may help you avoid or analyze a problem with PLCS Reporter.

- Manual installing SQL Server
- Reporter Scheduler
- Reporter Agent

9.1 Manual installing SQL Server

In case you are using Microsoft SQL Server you need to install it manually.

First download the package from the Microsoft website:
http://www.microsoft.com/sqlserver/en/us/editions/express.aspx

Then install SQL Server and SQL Server Management Studio Express on the system.

- When installation is completed and your SQL Server is running start SQL Server Management Studio
- Logon with the default account
- Click with right mouse on the root of the tree on the left and select properties
- Select the security page
- Change Server Authentication to SQL Server and Windows Authentication mode
- Click OK
- Then open on the tree the Security branch
- Right mouse click the Login branch and choose New Login...
- Fill in a Login name (e.g. reporter)
- Select SQL Server authentication and type in a password
- Remove User must change password at next login
- Select Server Roles page
- Tag the 'sysadmin' server role
- Then click OK
- Close SQL Server Management Studio
- Restart the SQL Server engine

Connecting to MSSQL

Start the Configuration Manager and select the Database tab, then click test.
If you receive the following error message:

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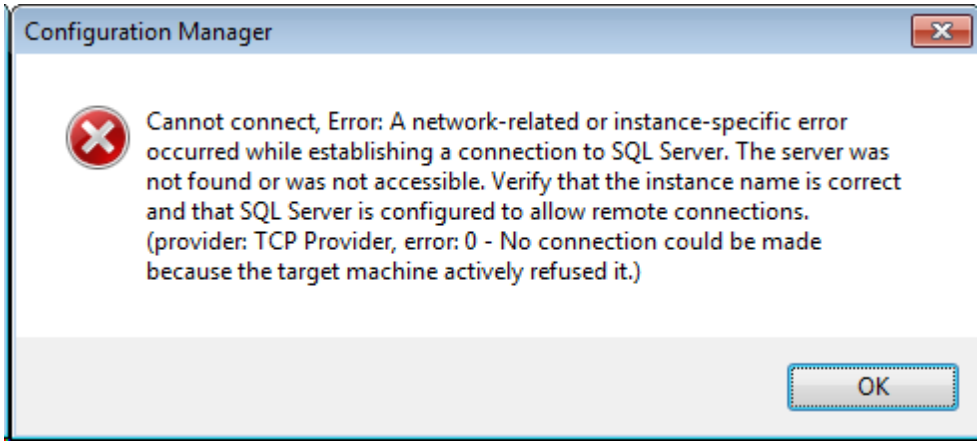
Configuration Manager
Cannot connect, Error: A network-related or instance-specific error occurred while establishing a connection to SQL Server. The server was not found or was not accessible. Verify that the instance name is correct and that SQL Server is configured to allow remote connections. (provider: TCP Provider, error: 0 - No connection could be made because the target machine actively refused it.)
OK

Start the SQL Server Configuration Manager and verify if the SQL Server Network Configuration, Protocols and
TCP/IP is enabled and the IP Addresses (IP All) TCP Port is assigned to e.g. 1433.

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9.2 Reporter Scheduler

The Reporter Scheduler is a Windows service application. It cannot be started directly or from the command line.

The executable can be found in the same directory as the PLCS Reporter application and is called 'scheduler.exe'.

Install Automatically

Starting the Configuration Manager will automatically register and start the Reporter Scheduler.
In case the Reporter Scheduler is not running the user will be prompted to start the service.

Install Manually

In case the service is not visible in the Windows services list (Reporter Scheduler), you can register the scheduler application manually.
Open a DOS command line and change the path to the installation path of the PLCS Reporter application.
Install the scheduler (perform on Windows command line: scheduler.exe /install), verify the scheduler.log file in the same directory.

Other Commands

Other ways to control the Reporter Collector using the Windows command line:

Scheduler Service	Command
Start	net start "Reporter Scheduler"
Stop	net stop "Reporter Scheduler"
Install	scheduler.exe /install
Remove	scheduler.exe /uninstall

A file scheduler.log is created when executing the install and uninstall functions. The file can be opened with notepad to verify that the service was correctly installed or removed.

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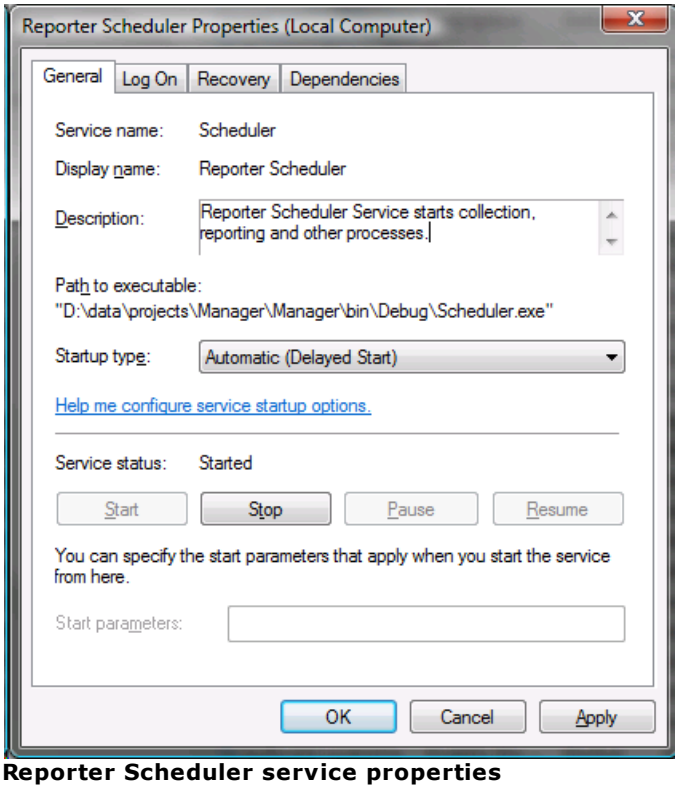
Scheduler Restart

In case the Reporter Scheduler service has not started after a Windows reboot, make sure the service is set to Automatic or Automatic with Delay (in case the database services need more time to start).



Reporter Scheduler service properties

9.3 Reporter Agent

The Reporter Agent is a command line Windows application. It connects to the TSM server through the TSM admin command line, queries the TSM server tables and inserts that information into the database, this is done though the ODBC driver. It is regularly started by the Reporter Scheduler service.

A TSM server connection needs to be configured before Reporter Agent Command Line can be run.

When the Reporter Agent program is run for the first time it will create a database and recreate all TSM tables and fill them with the TSM meta data.
Data from tables ARCHIVES, BACKUPS, CONTENTS is not processed as this would be too much information.

The executable is named: AgentC.exe and can be found in the installation path of the Reporter.

AgentC.exe can be manually run from a Windows command line. The syntax of the Reporter Agent when run from a Windows command line:

Syntax: AgentC.exe

-k *serverinstance*	Server instance name
-f	(Optional) Output to file instead of screen
-m	Reporter enterprise database creation and collection

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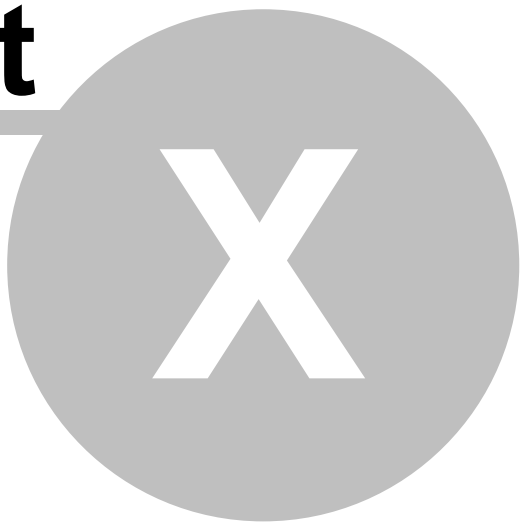
Part



10 Contacting Support

If you need further assistance with the PLCS Reporter, contact PLCS Reporter Support. To obtain the phone number for your region, go to www.plcs.eu and click Contact us.

Customers with an active support agreement may submit their request via the PLCS Reporter Support Web site. Go to www.plcs.eu and click Support.
PLCS support may request that you submit specific application information.

Use the user name and password you used previously, login and select create new ticket.

When describing the problem, please mention the version of PLCS Reporter and Windows platform.

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Part XI

11 Appendix

In this section samples, how to license and other information related to PLCS Reporter.

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11.1 Asset Management

What is Asset Management ?

IT asset management
From Wikipedia, the free encyclopedia (all rights and (c) Wikipedia)

IT asset management (ITAM) is the set of business practices that join financial, contractual and inventory functions to support life cycle management and strategic decision making for the IT environment. Assets include all elements of software and hardware that are found in the business environment.
Contents

1. Hardware asset management
2. Role of IT asset management in an organization
3. Goals of ITAM
4. Process

Hardware asset management

Hardware asset management entails the management of the physical components of computers and computer networks, from acquisition through disposal. Common business practices include request and approval process, procurement management, life cycle management, redeployment and disposal management. A key component is capturing the financial information about the hardware life cycle which aids the organization in making business decisions based on meaningful and measurable financial objectives.

Role of IT asset management in an organization

The IT Asset Management function is the primary point of accountability for the life-cycle management of information technology assets throughout the organization.

Included in this responsibility are development and maintenance of policies, standards, processes, systems and measurements that enable the organization to manage the IT Asset Portfolio with respect to risk, cost, control, IT Governance, compliance and business performance objectives as established by the business.

IT Asset Management is an integrated software solution that works with all departments that are involved in the procurement, deployment, management and expense reporting of IT assets.[1]

Goals of ITAM

ITAM business practices have a common set of goals:

- Uncover savings through process improvement and support for strategic decision making
- Gain control of the inventory
- Increase accountability to ensure compliance
- Enhance performance of assets and the life cycle management
- Risk reduction through standardization, proper documentation, loss detection

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Process

ITAM business practices are process-driven and matured through iterative and focused improvements. Most successful ITAM programs are invasive to the organization, involving everyone at some level, such as end users (educating on compliance), budget managers (redeployment as a choice), IT service departments (providing information on warranties), and finance (invoice reconciliation, updates for fixed asset inventories).
test

IT asset management generally uses automation to manage the discovery of assets, so inventory can be compared to ownership information. Full business management of IT assets requires a repository of multiple types of information about the asset, as well as integration with other systems such as supply chain, help desk, procurement and HR systems.

ITAM and PLCS Reporter

Seeing as a reporting product for backup, archive and disaster recovery the need to know what is behind this data and application landscape.
Reporter has a set of tools to perform automated discovery and request information about the components used components during a IBM Tivoli Storage Manager operation.

Currently supported are the following systems:

Physical systems	**Virtual Systems**
Windows all clients currently in supported: • Windows XP * • Windows 2003 SP2* • Windows 2008 • Windows Vista • Windows 7 * Patch may be necessary referral here	• VMware Server 1.x / 2.x • VMware ESX 3.5 • VMware ESX 4.0 (vSphere) • VMware ESXi 3.5 • VMware ESXi 4.0 • VMware ESXi 4.1 • VMware workstation 6.x / 7.x • VMware GSX

and components:

Component support	**VM Component support**
• File space detection • CPU (core) detection • Windows OS release detection • Windows TSM node detection • Windows TSM TDP detection	• File space detection • CPU (core) detection • Windows OS release detection • Linux OS release detection

PLCS Reporter supports two methods of asset management detections, one is thru the VMware (c) toolkit which communicates with the SDK web services. The other method is thru Windows WMI (Windows Management Instrumentation services). VMware support is done via connecting to either Virtual Center or directly to the VMware server system to collect information. For WMI queries are run to the Windows host using remote procedure calls. Information is collected about physical components and also registry information which can be matched with information gathered within the PLCS Reporter SQL database.

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11.1.1 What is WMI

Windows Management Instrumentation

From Wikipedia, the free encyclopedia

Windows Management Instrumentation (WMI) (or Windows Management Interface) is a set of extensions to the Windows Driver Model that provides an operating system interface through which instrumented components provide information and notification. WMI is Microsoft's implementation of the Web-Based Enterprise Management (WBEM) and Common Information Model (CIM) standards from the Distributed Management Task Force (DMTF).

WMI allows scripting languages like VBScript or Windows PowerShell to manage Microsoft Windows personal computers and servers, both locally and remotely. WMI is preinstalled in Windows 2000 and newer OS's. It is available as a download for Windows 95 and Windows 98.[2]

Microsoft also provides a command line interface to WMI called Windows Management Instrumentation Command-line (WMIC). [3]

Purpose of WMI

The purpose of WMI is to define a non-proprietary set of environment-independent specifications which allow management information to be shared between management applications. WMI prescribes enterprise management standards and related technologies that work with existing management standards, such as Desktop Management Interface (DMI) and SNMP. WMI complements these other standards by providing a uniform model. This model represents the managed environment through which management data from any source can be accessed in a common way.

Overview

In order to unify the management techniques for the sake of simplicity, the DMTF defined CIM to represent real-world manageable entities in a unified way. The CIM object model is an object database model using terms and semantics that are unique to all constructors and software developers. This object model is implemented in a database called the CIM repository.

Based on the CIM model, WMI includes real-world manageable components, available from the DMTF standards with some specific extensions that represent the various Windows components. Moreover, WMI exposes a collection of COM-scriptable objects that allow various applications to take advantage of the management information.

As part of the installation process, most of the Microsoft applications available today (e.g. SQL Server, Exchange Server, Microsoft Office, Internet Explorer, Host Integration Server, Automated Deployment Services) extend the standard CIM object model to add the representation of their manageable entities in the CIM repository. This representation is called a WMI class, and it exposes information through properties and

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allows the execution of some actions via methods. The access to the manageable entities is made via a software component, called a "provider" which is simply a DLL implementing a COM object written in C/C++. Because a provider is designed to access some specific management information, the CIM repository is also logically divided into several areas called namespaces. Each namespace contains a set of providers with their related classes specific to a management area (i.e. RootDirectoryDAP for Active Directory, RootSNMP for SNMP information or RootMicrosoftIISv2 for Internet Information Services information).

To locate the huge amount of management information available from the CIM repository, WMI comes with a SQL-like language called the WMI Query Language (WQL).

11.1.2 Microsoft on WMI

What is WMI and what can it do for me?

Windows Management Instrumentation (WMI) is a core Windows management technology; WMI can be used to manage both local and remote computers. WMI provides a consistent approach to carrying out day-to-day management tasks with programming or scripting languages. For example, you can:

- Start a process on a remote computer.
- Schedule a process to run at specific times on specific days.
- Reboot a computer remotely.
- Get a list of applications installed on a local or remote computer.
- Query the Windows event logs on a local or remote computer.

The word "Instrumentation" in WMI refers to the fact that WMI can get information about the internal state of computer systems, much like the dashboard instruments of cars can retrieve and display information about the state of the engine.

On what platforms is WMI available?

WMI is available in all recent versions of Windows. WMI is installed with Windows Me, Windows 2000, Windows XP and Windows Server 2003.
For Windows 98 and Windows NT 4.0, WMI is available as an Internet download from http://www.microsoft.com/downloads.
Search for the download "Windows Management Instrumentation (WMI) CORE 1.5 (Windows 95/98/NT 4.0)."

Note that Windows NT 4.0 requires Service Pack 4 or later before you can install and run WMI.

Additional software requirements for WMI include:

Microsoft® Internet Explorer version 5.0 or later.
Windows Script Host (WSH). WSH ships with Windows 2000, Windows XP, Windows Server 2003, and Windows Me, but not with Windows NT4 or Windows 98. You can download WSH from http://www.microsoft.com/downloads. The latest version -- which ships with Windows XP and Windows Server 2003 -- is WSH 5.6.

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Why is a WMI operation returning an error?

To begin with, make sure that the error in question is really a WMI error. WMI error numbers start with 8004xxxx (e.g., 80041001). You can look up WMI error numbers and return codes by going to http://msdn.microsoft.com/library/default.asp and searching for "WMI Return Codes." If you can't find the information you need, try searching for the specific error number on MSDN.

If you do not receive an error number when running the script, you can look for errors in the WMI log files found in the %windir%\system32\wbem\logs folder. If it is difficult to determine which errors resulted from the script you just ran, delete all the logs and run the script again. This should make it easier to find errors related to your script.

If you can't find any errors in the log files, you might need to reset the logging level for the logs. To get maximum information, set the logging level to verbose. On Windows 2000, Windows NT, and Windows Me/98/95 you need to restart WMI after changing the logging levels; this is not required for Windows XP and Windows Server 2003. For detailed information on configuring the logging levels, go to http://msdn.microsoft.com/library/default.asp and search for "Logging WMI Activity."

Errors might also be recorded in the Windows event logs. Look for events with the source Winmgmt.

On Windows XP or Windows Server 2003 you can use MSFT_WMIProvider classes to troubleshoot provider operations such as loading and unloading the provider, responding to a query, executing a method, etc. For example, WMI generates an instance of the class MSFT_WmiProvider_CancelQuery_Pre immediately before the provider cancels the response to a query. An instance of MSFT_WmiProvider_CancelQuery_Post is generated after the cancellation occurs. If a query operation in a particular script is failing you can write a script to wait for instances of these event classes to be generated. When your monitoring script receives one of these events, the data tells you the provider involved, the type of provider, the query being processed, and the namespace involved.

For more information, go to http://msdn.microsoft.com/library/default.asp and search for "Troubleshooting Classes."

Following is a sample script that troubleshoots problems with the Ping provider. The script reports all the actions that take place as part of a Ping operation, including such things as provider loading, query receipt, and error generation. This information can help you determine whether the problems you are having occurred in the provider or in the WMI service. In the output, look for events where the ResultCode is not equal to 0; in general an error code other than 0 indicates that an operation failed.

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11.1.3 Virtual Systems (VMWARE)

VMWare is currently the only PLCS Reporter supported virtual system. PLCS Reporter uses the VI toolkit of VMWare and it is possible that on a technical level everything is functional but might not be able to support any outstanding issues.

Currently supported platforms are ESX, virtual center (VC) and VMWare servers. PLCS Reporter has successfully been tested with Virtual Center (VC) 3.5, 4.0 and 4.1, VMWare Server 1 and 2.

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11.2 Backup Database

This section only applies to PLCS Reporter with a MS SQL database.

Make sure SQL Server Management Studio is installed on the MS SQL database server (SQL Server Management Studio Express is free of charge).
To use go to http://www.microsoft.com/en/us/default.aspx and search for SQL Server Management Studio, download and install the software.

To perform a manual backup to disk open the SQL Server Management Studio (via the Start Menu), connect and open Databases folder. Select the database that you like to backup and then right click with the right mouse button and select Tasks, Backup... a dialog window will open, verify the settings and click OK.

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If you have any suggestions or questions, do not hesitate and send us an email: info@plcs.eu

You can download software updates, documentation enhancements and obtain further information at: www.plcs.eu

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11.4 How to License?

PLCS Reporter is licensed per TSM server instance.

Advised Database's on a collector

The maximum amount of PLCS Reporter licenses per database server is up to 15 TSM instances with MS SQL Express and up to 30 TSM instances with SQL Enterprise Editions.

Microsoft SQL Server Database

The maximum amount of PLCS Reporter licenses per database server is up to 15 TSM instances with MS SQL Server Express Edition and up to 30 TSM instances with SQL Server Workgroup, Standard and Enterprise Editions. SQL Server versions other then express like Standard and Enterprise Editions are not free of charge.

Important

If you choose to run your database on a SQL Server other then SQL Express you need to obtain a license for that database server at Microsoft.
Licenses other than MS SQL Express are not included. View usage criteria here.

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